STEREO CASSETTE DECK

KX-1100HX

SERVICE MANUAL

KENWOOD

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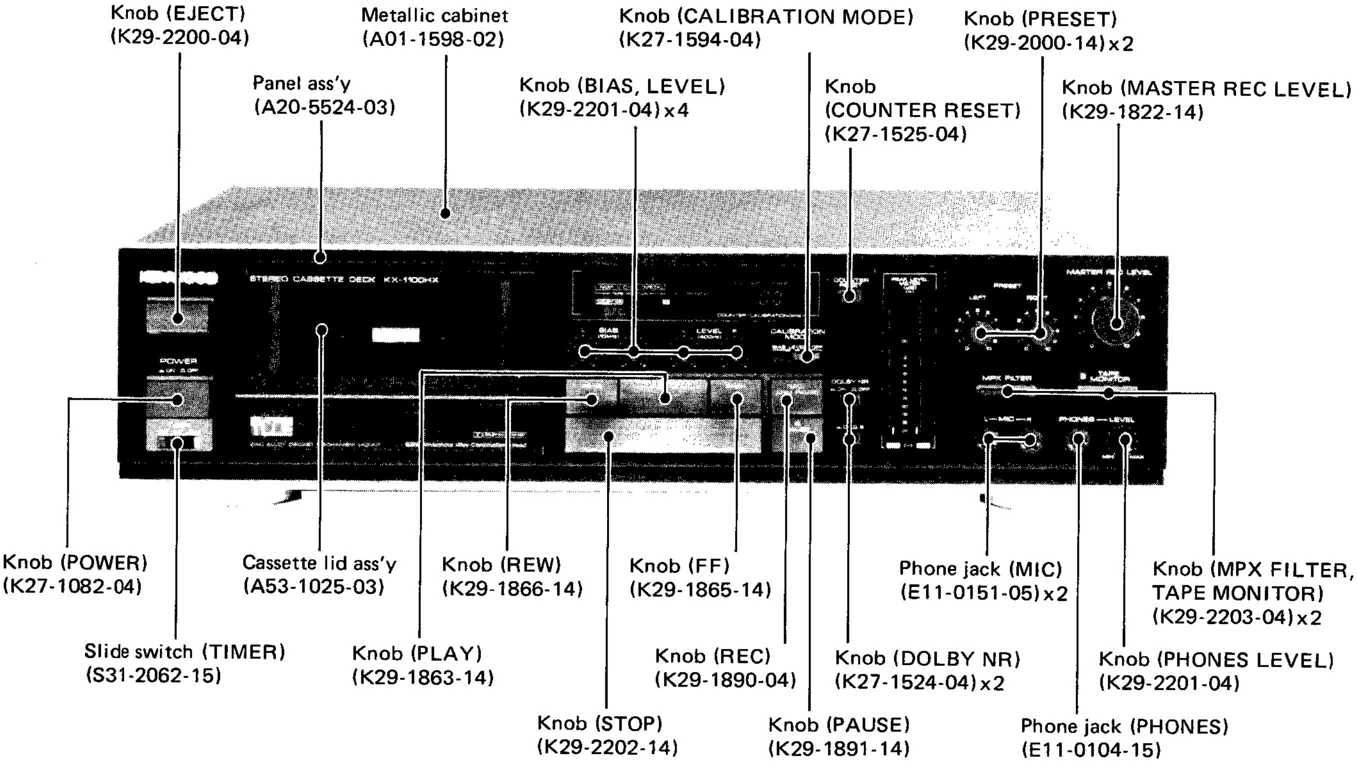
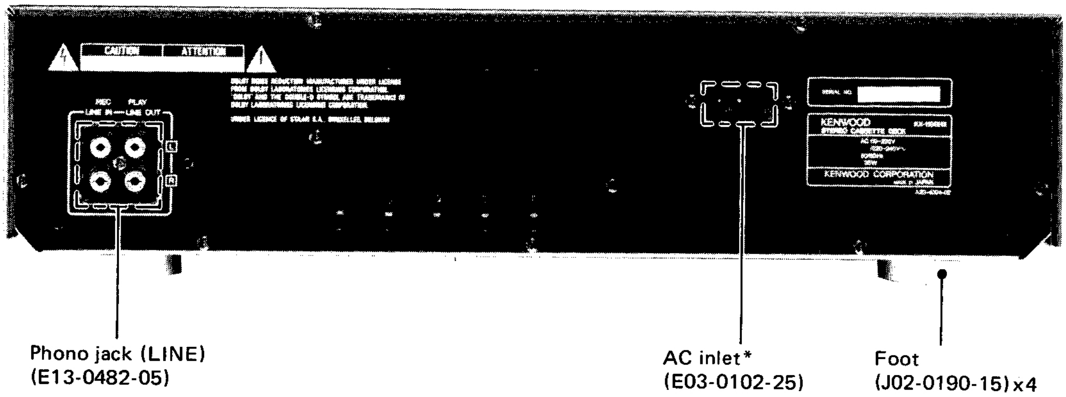

Knob (EJECT)
(K29-2200-04)
Metallic cabinet
(A01-1598-02)
Knob (CALIBRATION MODE)
(K27-1594-04)
Knob (PRESET)
(K29-2000-14)x2
Panel ass'y
(A20-5524-03)
Knob (BIAS, LEVEL)
(K29-2201-04)x4
Knob
(COUNTER RESET)
(K27-1525-04)
Knob (MASTER REC LEVEL)
(K29-1822-14)
Knob (POWER)
(K27-1082-04)
Cassette lid ass'y
(A53-1025-03)
Knob (REW)
(K29-1866-14)
Knob (FF)
(K29-1865-14)
Phone jack (MIC)
(E11-0151-05)x2
Knob (MPX FILTER,
TAPE MONITOR)
(K29-2203-04)x2
Slide switch (TIMER)
(S31-2062-15)
Knob (PLAY)
(K29-1863-14)
Knob (REC)
(K29-1890-04)
Knob (DOLBY NR)
(K27-1524-04)x2
Knob (PHONES LEVEL)
(K29-2201-04)
Knob (STOP)
(K29-2202-14)
Knob (PAUSE)
(K29-1891-14)
Phone jack (PHONES)
(E11-0104-15)


Phono jack (LINE)
(E13-0482-05)
AC inlet*
(E03-0102-25)
Foot
(J02-0190-15)x4

*** Refer to parts list on page 35.**

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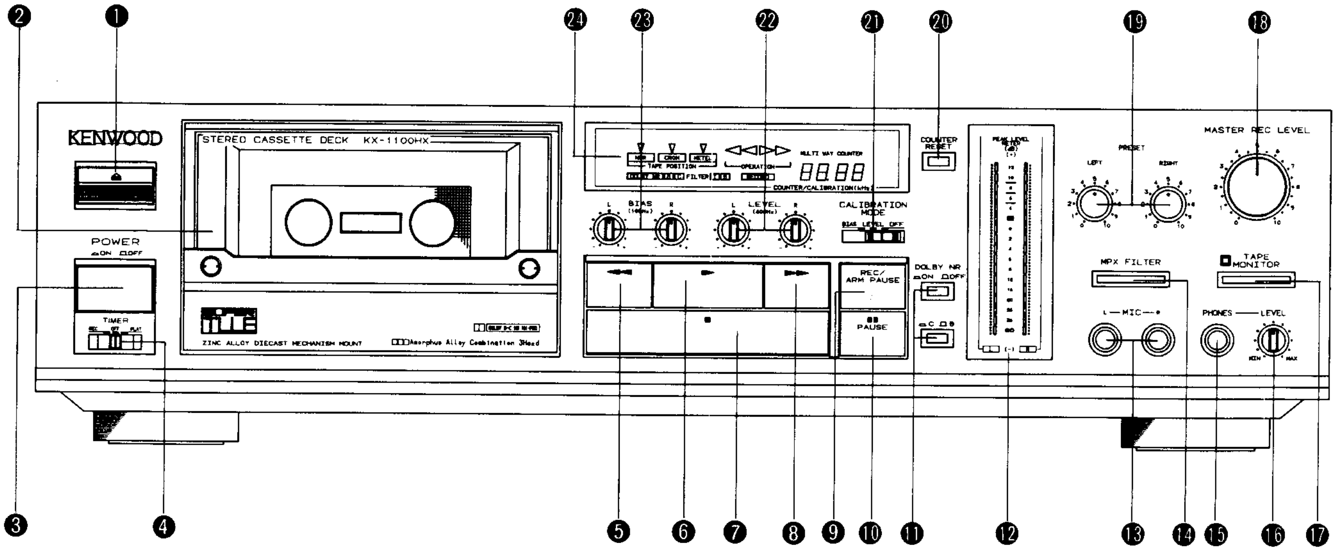
SPECIFICATIONS .... BACK COVER

CONTROLS, INDICATORS AND CONNECTORS

Numbers in front of names correspond those in the diagram. The name in the bracket shows the indication on the panel.


❷
❶
㉔
㉓
㉒
㉑
⑳
⑲
⑱
KENWOOD
STEREO CASSETTE DECK KX-1100HX
POWER
ON OFF
TIMER
REC OFF PLAY
ZINC ALLOY DIECAST MECHANISM MOUNT
Amorphous Alloy Combination 3Head
TAPE POSITION
FILTER
OPERATION
MULTI WAY COUNTER
COUNTER/CALIBRATION
BIAS
LEVEL
CALIBRATION MODE
BIAS LEVEL OFF
COUNTER RESET
REC/ARM PAUSE
PAUSE
DOLBY NR
ON OFF
B C
PEAK LEVEL
PRESET
LEFT
RIGHT
MASTER REC LEVEL
MPX FILTER
TAPE MONITOR
L — MIC — R
PHONES — LEVEL
MIN MAX
❸
❹
❺
❻
❼
❽
❾
❿
⓫
⓬
⓭
⓮
⓯
⓰
⓱

❶ Eject key (▲)
Pressing this key to open the cassette holder.

❷ Cassette holder
When the eject key is pressed, this holder opens. To close it, push the upper section of the holder until it locks.

❸ POWER switch
Press this switch to turn the power ON.· Pressing again turns the power OFF.

❹ TIMER stand-by switch
Use this switch along with an audio timer when an unattended recording or timer-playback is performed. Set this switch to the REC position for unattended recording, to the PLAY position for timer-playback, and **set to OFF when the timer is not used.**

❺ Rewind key (◀◀)
Press this key to rewind the tape from right to left at high speed; the rewind indicator (◁◁) lights.

❻ Play key (▶)
Press this key to forward the tape at fixed speed and start playback; the play indicator (▷) lights.

❼ Stop key (■)
Press this key to stop the tape travel.

❽ Fast forward key (▶▶)
Press to advance the tape rapidly (from left to right); the fast-forward indicator (▷▷) lights.

❾ REC/ARM PAUSE key
Press this key to start recording. It is not necessary to press the play key simultaneously since this unit provides the one-touch recording system. At this time, the record and play indicators light.
When this key is pressed again during recording, about 4 seconds non-recorded section is made and the tape travel will stop temporarily.

❿ PAUSE key (❚❚)
To interrupt recording or playback momentarily, press this key. When this key is pressed during playback, the play indicator flickers and the playback is interrupted momentarily. When this key is pressed during recording, the record indicator lights and the play indicator blinks so that the recording is interrupted. To release the play-pause mode, press the play key and to release the record-pause mode, press the REC/ARM PAUSE key.

⓫ DOLBY NR swith
When playing back the Dolby-encoded cassette tape or when recording with Dolby NR circuit, set the ON/OFF switch to ON and set to B or C position. The selected NR indicator lights according to the circuit to be used.

⓬ PEAK LEVEL METER
This indicates the peak values of the input levels when recording or output levels when playback. The peak values are held for approx. 2 seconds.

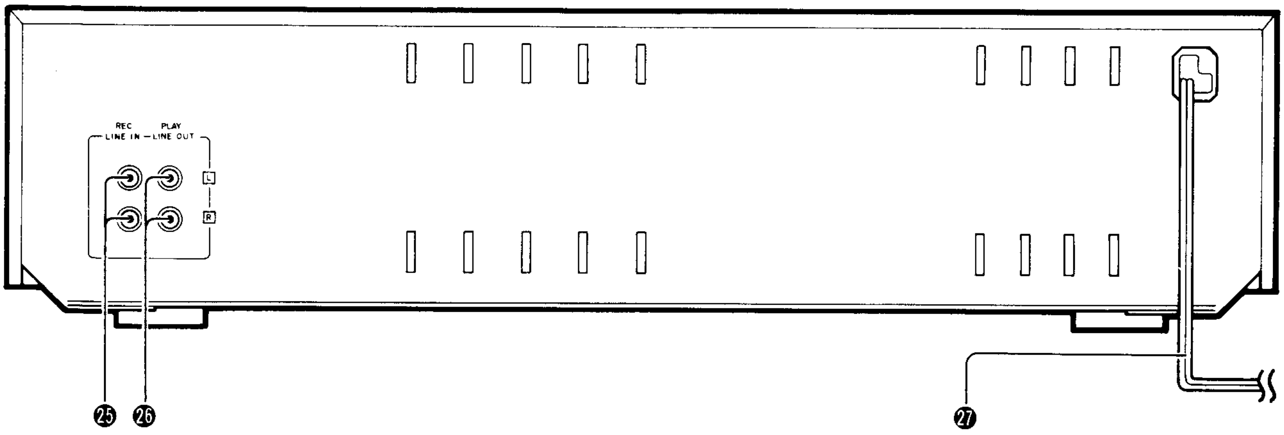
⓭ MIC jacks (L/R)
Plug the microphones into these jacks when recording with microphones; L for left channel and R for right channel. Use the low impedance (600 ohms) microphones.

Note:
When the microphones are connected, the signal input from the LINE IN terminals are automatically cancelled. Disconnect the microphones before recording from LINE sources.

⓮ MPX FILTER switch
Use this switch when recording FM broadcast using Dolby NR with this switch set to ON, the 19 kHz pilot signal and 38 kHz sub-carrier signal contained in the FM stereo broadcast signals are eliminated to prevent malfunctioning of the Dolby NR circuit.

KX-1100HX

CONTROLS, INDICATORS AND CONNECTORS



⑮ PHONES jack
Plug the stereo headphones into this jack to monitor recordings or tape playback.

⑯ PHONES LEVEL knob
Adjust the volume level for the headphones regardless of the recording input level.

⑰ MONITOR switch
Press this switch to monitor the recording sound. When it is pressed, the Tape indicator above and the [T] indicator on the display window light so that the recorded sound can be monitored. When the Tape indicator above it is not lit, the [S] indicator lights in the display window so that the input (before recording) sound can be monitored.

⑱ MASTER REC LEVEL control knob
Adjust the recording input level with this knob. Left and right channel levels are varied simultaneously.

⑲ PRESET record level knobs
The signals for the left and right channels are adjusted independently with these knobs.

⑳ COUNTER RESET key
Press this key to reset the linear tape counter to [:00].

㉑ CALIBRATION MODE switch
Use to adjust the proper bias and sensitivity levels according to the cassette tape to be used.

㉒ LEVEL control knobs
Depending on the tape to be used, recording signal current for each L and R channel can be adjusted continuously. (0.4 kHz)

㉓ BIAS control knobs
Depending on the tape to be used, bias current (10 kHz) for each L/R channel can be adjusted continuously.

㉔ Display window
According to the operation mode, each indicator lights or blinks.
AUTO TAPE SELECTOR: [NOR]; [CrO$_2$]; [METAL]
DOLBY NR indicator: [B]; [C]
FILTER indicator:
[T], [S] indicator:
OPERATION indicator, RECORD indicator:
MULTIWAY COUNTER indicators:

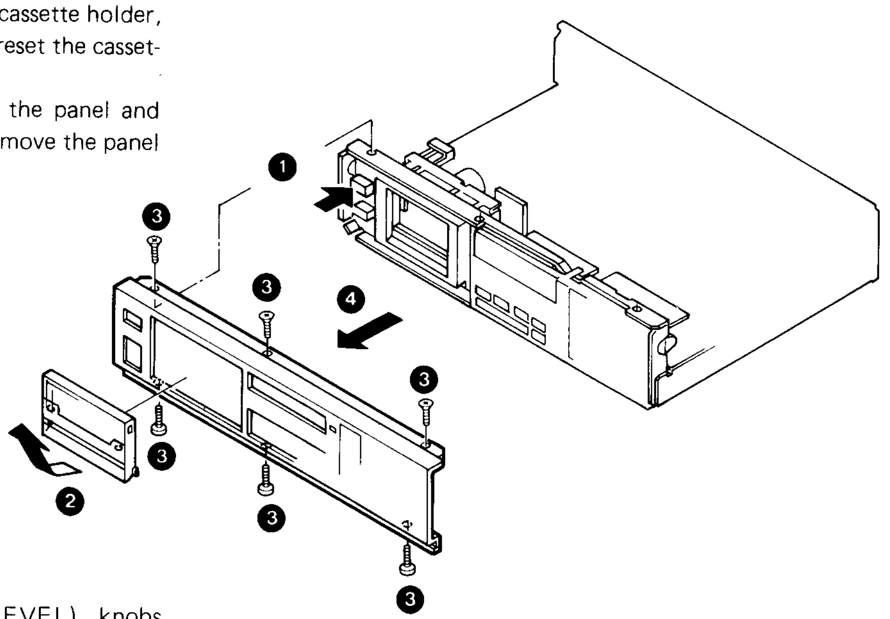
㉕ LINE IN terminals
Connect the Tape Rec terminals of your amplifier, etc. to these terminals using provided audio cables.

㉖ LINE OUT terminals
Connect the Tape Play or AUX terminals of your amplifier, etc. to these terminals using provided audio cables.

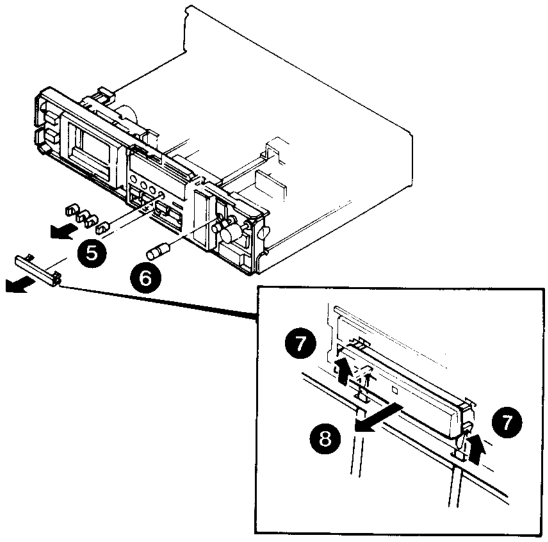
㉗ Power cord
Plug this into the wall outlet or AC outlet of the amplifier, etc.

DISASSEMBLY FOR REPAIR

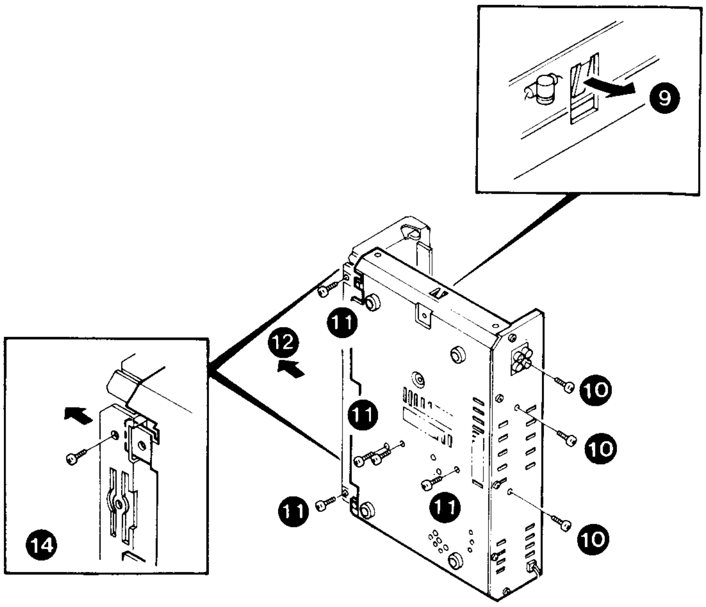
1. Press EJECT knob (①) to pull out the cassette holder, remove the cassette lid (②), and then reset the cassette holder.
2. Remove 3 screws on the upper part of the panel and 3 screws on the lower part (③), and remove the panel (④).



3. Remove 4 CALIBRATION (BIAS, LEVEL) knobs (⑤) and PRESET (L) knobs (⑥).
4. Insert (–) screw driver to the escutcheon hole (⑦), and pull out STOP knob toward you (⑧).

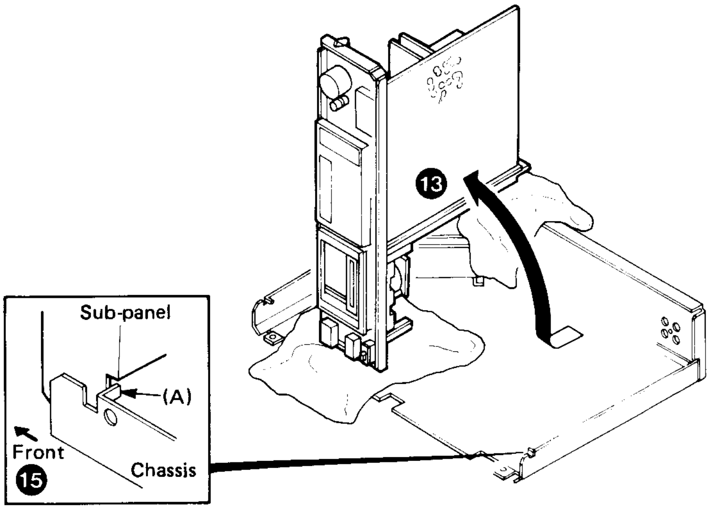


5. Bend the chassis claw outward (⑨).
6. Remove 3 screws (⑩) on the rear of the panel and 5 screws (⑪) on the chassis, and then pull out the subpanel assembly slightly toward you and set it upright (⑫, ⑬).

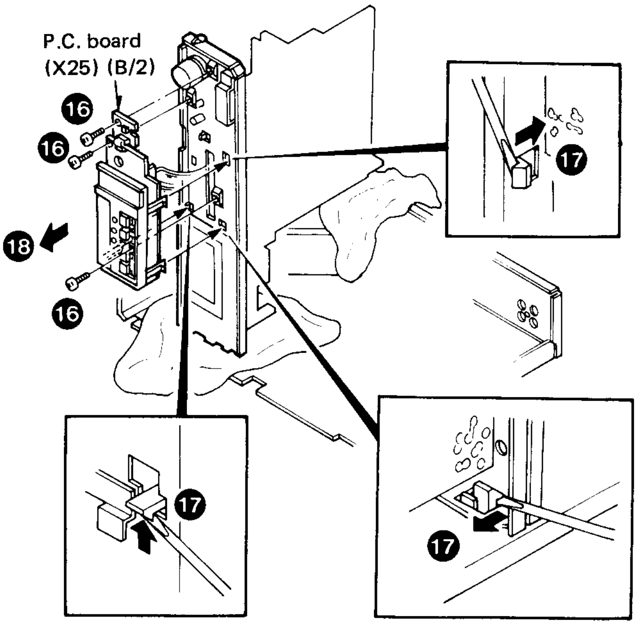


DISASSEMBLY FOR REPAIR

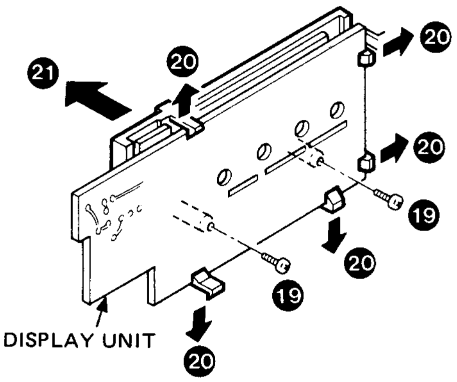
Note : When assembling the sub-panel assembly and chassis, insert the chassis's claw to the inside as shown in ⑭ , and press the sub-panel into a projection of the chassis (A) as shown in ⑮ .

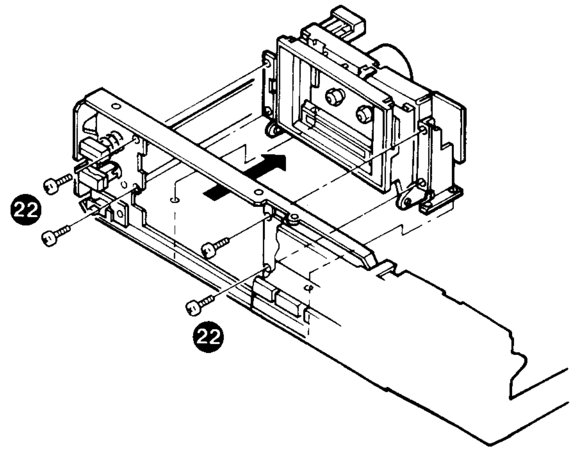

⑬
Sub-panel
(A)
Front
⑮
Chassis

7. Remove 3 screws which fasten the display unit (⑯), remove 3 hooks fixed on the sub-panel (⑰), and then pull out the display unit toward you (⑱).

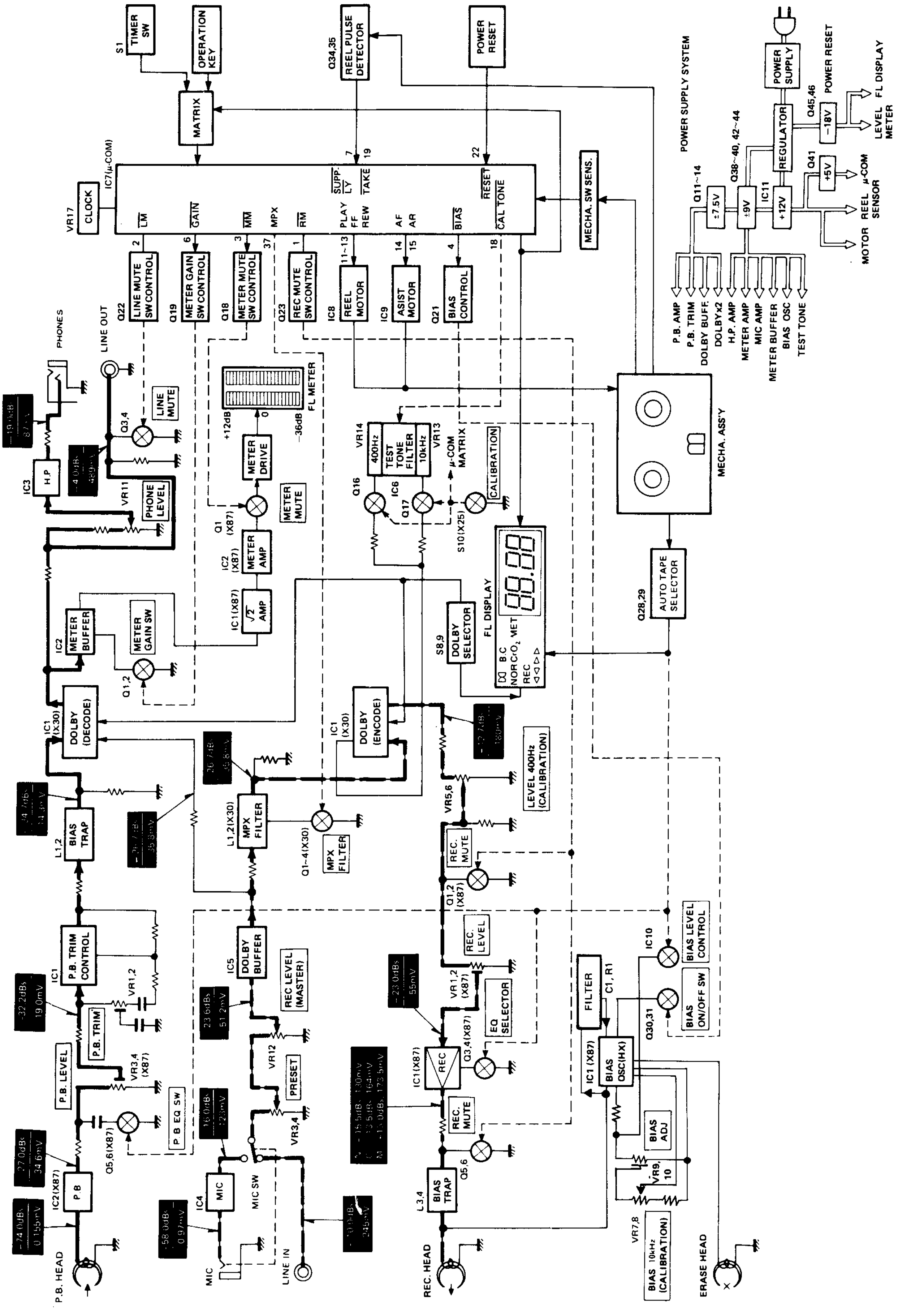

P.C. board
(X25) (B/2)
⑯
⑯
⑱
⑯
⑰
⑰
⑰

8. Remove 2 screws which fasten the display unit and escutcheon (⑲).
9. Remove 5 hooks (⑳), and disassemble the display unit and escutcheon (㉑).
10. Remove 4 screws on both ends of front side of the sub-panel (㉒), and remove the mechanism assembly to the rear side.


㉑
⑳
⑳
⑳
⑲
⑳
⑲
DISPLAY UNIT
⑳



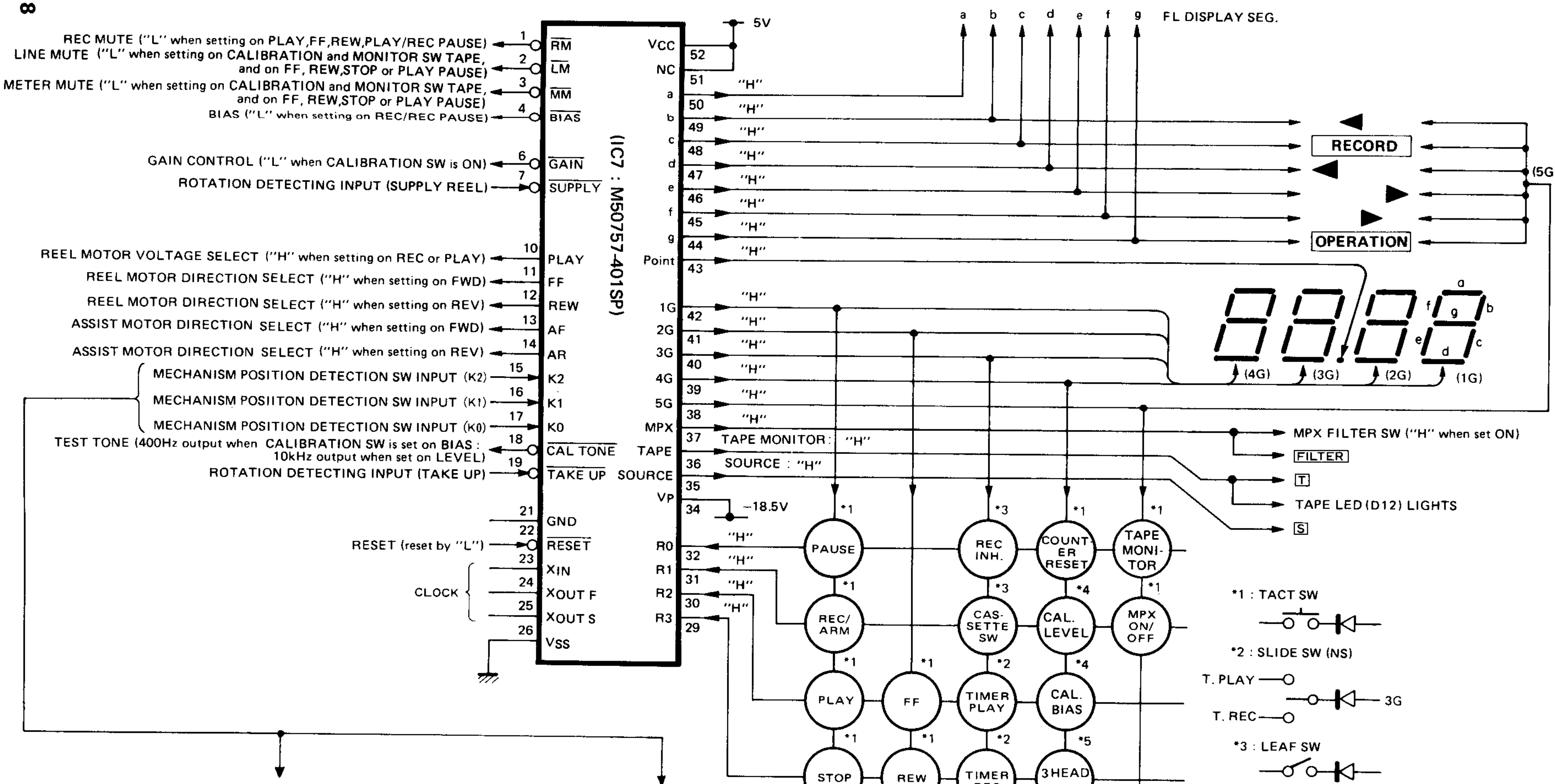
BLOCK/LEVEL DIAGRAM


S1
TIMER SW
OPERATION KEY
MATRIX
Q34,35
REEL PULSE DETECTOR
POWER RESET
VR17
CLOCK
IC7(μ-COM)
7
19
22
SUPP. LY
TAKE
RESET
CAL TONE
LM
GAIN
MM
MPX
RM
PLAY
FF
REW
AF
AR
BIAS
MECHA. SW SENS.
2
6
3
37
1
11~13
14
15
4
18
Q22
LINE MUTE SW CONTROL
Q19
METER GAIN SW CONTROL
Q18
METER MUTE SW CONTROL
Q23
REC MUTE SW CONTROL
IC8
REEL MOTOR
IC9
ASIST MOTOR
Q21
BIAS CONTROL
PHONES
LINE OUT
Q3,4
LINE MUTE
-19.0dB
-4.0dB
IC3
H.P.
VR11
PHONE LEVEL
+12dB
0
-36dB
FL METER
METER DRIVE
Q1 (X87)
METER MUTE
IC2 (X87)
METER AMP
IC1(X87)
√2 AMP
VR14
400Hz
TEST TONE FILTER
10kHz
VR13
Q16
IC6
Q17
μ-COM MATRIX
CALIBRATION
S10(X25)
FL DISPLAY
88.88
B C
NOR CrO2 MET
REC
S8,9
DOLBY SELECTOR
MECHA. ASS'Y
Q28,29
AUTO TAPE SELECTOR
IC2
METER BUFFER
METER GAIN SW
Q1,2
IC1 (X30)
DOLBY (DECODE)
IC1 (X30)
DOLBY (ENCODE)
-26.7dB
-34.7dB
-26.7dB
35.8mV
L1,2
BIAS TRAP
L1,2(X30)
MPX FILTER
Q1~4(X30)
MPX FILTER
LEVEL 400Hz (CALIBRATION)
VR5,6
REC. MUTE
Q1,2 (X87)
REC. LEVEL
IC1
P.B. TRIM CONTROL
VR1,2
-32.2dB
19.0mV
P.B. TRIM
P.B. LEVEL
VR3,4 (X87)
P.B. EQ SW
Q5,6(X87)
-27.0dB
34.6mV
IC2(X87)
P.B
-74.0dB
0.155mV
P.B. HEAD
IC5
DOLBY BUFFER
REC LEVEL (MASTER)
-23.6dB
51.2mV
VR12
PRESET
VR3,4
-16.0dB
125mV
IC4
MIC
MIC SW
-58.0dB
0.97mV
MIC
LINE IN
-10.0dB
245mV
-23.0dB
55mV
VR1,2 (X87)
Q3,4(X87)
EQ SELECTOR
IC1(X87)
REC
N -15.5dB 130mV
C -13.5dB 164mV
M -13.0dB 173.5mV
REC. MUTE
Q5,6
L3,4
BIAS TRAP
REC. HEAD
FILTER
C1, R1
IC1 (X87)
BIAS OSC(HX)
BIAS ADJ
VR9, 10
VR7,8
BIAS 10kHz (CALIBRATION)
ERASE HEAD
Q30,31
BIAS ON/OFF SW
IC10
BIAS LEVEL CONTROL
POWER SUPPLY SYSTEM
POWER SUPPLY
REGULATOR
Q45,46
-18V
POWER RESET
LEVEL METER
FL DISPLAY
Q38~40, 42~44
Q41
+5V
μ-COM
Q11~14
±7.5V
±9V
IC11
+12V
REEL SENSOR
MOTOR
P.B. AMP
P.B. TRIM
DOLBY BUFF.
DOLBY x2
H.P. AMP
METER AMP
MIC AMP
METER BUFFER
BIAS OSC
TEST TONE

KX-1100HX

CIRCUIT DESCRIPTION

1. Microprocessor M50757-401SP (X26-1200-10 : IC7)


REC MUTE ("L" when setting on PLAY,FF,REW,PLAY/REC PAUSE)
LINE MUTE ("L" when setting on CALIBRATION and MONITOR SW TAPE, and on FF, REW,STOP or PLAY PAUSE)
METER MUTE ("L" when setting on CALIBRATION and MONITOR SW TAPE, and on FF, REW,STOP or PLAY PAUSE)
BIAS ("L" when setting on REC/REC PAUSE)
GAIN CONTROL ("L" when CALIBRATION SW is ON)
ROTATION DETECTING INPUT (SUPPLY REEL)
REEL MOTOR VOLTAGE SELECT ("H" when setting on REC or PLAY)
REEL MOTOR DIRECTION SELECT ("H" when setting on FWD)
REEL MOTOR DIRECTION SELECT ("H" when setting on REV)
ASSIST MOTOR DIRECTION SELECT ("H" when setting on FWD)
ASSIST MOTOR DIRECTION SELECT ("H" when setting on REV)
MECHANISM POSITION DETECTION SW INPUT (K2)
MECHANISM POSIITON DETECTION SW INPUT (K1)
MECHANISM POSITION DETECTION SW INPUT (K0)
TEST TONE (400Hz output when CALIBRATION SW is set on BIAS : 10kHz output when set on LEVEL)
ROTATION DETECTING INPUT (TAKE UP)
RESET (reset by "L")
CLOCK
(IC7 : M50757-401SP)
1 RM
2 LM
3 MM
4 BIAS
6 GAIN
7 SUPPLY
10 PLAY
11 FF
12 REW
13 AF
14 AR
15 K2
16 K1
17 K0
18 CAL TONE
19 TAKE UP
21 GND
22 RESET
23 XIN
24 XOUT F
25 XOUT S
26 VSS
52 VCC
51 NC
50 a
49 b
48 c
47 d
46 e
45 f
44 g
43 Point
42 1G
41 2G
40 3G
39 4G
38 5G
37 MPX
36 TAPE
35 SOURCE
34 VP
32 R0
31 R1
30 R2
29 R3
5V
"H"
TAPE MONITOR : "H"
SOURCE : "H"
−18.5V
a b c d e f g FL DISPLAY SEG.
RECORD
OPERATION
(5G)
(4G) (3G) (2G) (1G)
a b c d e f g
MPX FILTER SW ("H" when set ON)
FILTER
T
TAPE LED (D12) LIGHTS
S
PAUSE
REC/ARM
PLAY
STOP
FF
REW
REC INH.
CAS-SETTE SW
TIMER PLAY
TIMER REC
COUNTER RESET
CAL. LEVEL
CAL. BIAS
3HEAD SEL.
TAPE MONI-TOR
MPX ON/OFF
*1 : TACT SW
*2 : SLIDE SW (NS)
T. PLAY
T. REC
3G
*3 : LEAF SW
*4 : SLIDE SW (S)
CAL.L
CAL.B
4G
*5 Diode

When shifting the current operation to one on right hand of the table, the assist motor rotates in FWD direction. When shifting to the right, the motor rotates in REV direction.

Timing of operation on K0, K1 or K2 modes of mechanism SW

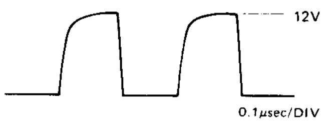
Reel motor operation table

SW Mode / Function	MODE SW			REEL MOTOR
	K2	K1	K0	
STOP	OFF	ON	ON	OFF
PLAY	ON	OFF	ON	FWD
PAUSE	ON	ON	OFF	OFF
FF/REW	OFF	OFF	ON	FWD/REV
CUE/REV	ON	ON	OFF	FWD/REV

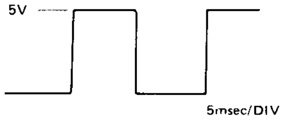
Assist motor operation table

	→	FF REW	STOP	↔	PAUSE	↔	PLAY	←
K0	OFF	ON	ON	OFF	OFF	ON	ON	OFF
K1	OFF	OFF	ON	ON	ON	ON	OFF	OFF
K2	OFF	OFF	OFF	OFF	ON	ON	ON	ON

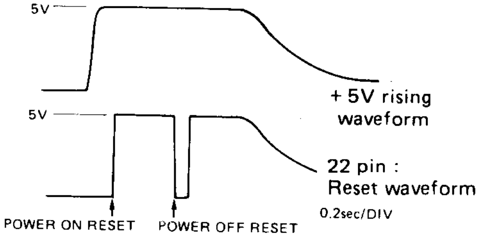
Clock waveform (25 pin)



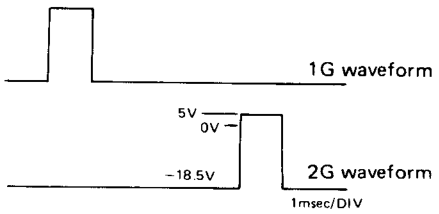
Reel pulse waveform (19 pin)



Digit signal waveform (41,42 pin)



Reset waveform (22 pin)



CIRCUIT DESCRIPTION

2. Description of components

CASSETTE UNIT (X26-1200-10)

<table>
<tr><th>Components</th><th>Use/Function</th><th>Operation/Condition/Interchangeability</th></tr>
<tr><td>Q1, Q2</td><td>METER GAIN SW</td><td>Controlled by Q19. ON when CALIBRATION SW (S10 : X25-2460-11) is ON to increase the gain or the replay system by approximately 19.5dB. (refer to Q19)</td></tr>
<tr><td>Q3, Q4</td><td>LINE MUTE SW</td><td>Controlled by Q22. (refer to Q22)
● ON when MONITOR SW is set on TAPE and STOP,FF,REW or PLAY PAUSE.
● Instant ON when operating MONITOR SW (on PLAY or REC).
● ON when setting on CALIBRATION.
● ON when setting on POWER ON/OFF.</td></tr>
<tr><td>Q5, Q6</td><td>REC MUTE SW</td><td>Controlled by Q23. OFF when setting on REC and ON when setting on other modes (including REC PAUSE). (refer to Q23)</td></tr>
<tr><td>Q11, Q13</td><td>+7.4V power supply</td><td>Power supply to stabilize the signal system amplifier.(PB amp, PLAY TRIM CONT)</td></tr>
<tr><td>Q12, Q14</td><td>−7.4V power supply</td><td>Power supply to stabilize the signal system amplifier. (PB amp, PLAY TRIM CONT)</td></tr>
<tr><td>Q15</td><td>Impedance converter for test mode</td><td>To lower output impedance using the emitter follower.
To output 400Hz square-wave from CAL TONE control terminal when CALIBRATION SW (S10) is set on LEVEL and 10kHz square-wave when set on BIAS, and input it to Q15 base.</td></tr>
<tr><td>Q16, Q17</td><td>Select SW for test tone</td><td>Controlled by CALIBRATION SW (S10)
<table>
<tr><td>CAL.SW</td><td>OFF</td><td>LEVEL</td><td>BIAS</td></tr>
<tr><td>Q16</td><td>ON</td><td>OFF</td><td>ON</td></tr>
<tr><td>Q17</td><td>ON</td><td>ON</td><td>OFF</td></tr>
</table></td></tr>
<tr><td>Q18</td><td>METER MUTE control</td><td>To out put "L" from $\overline{\text{MM}}$ control terminal of 3 pin of mocroprocessor IC7 when set on modes other than PLAY, REC, MONITOR (SOURCE), REC PAUSE (SOURCE only) or CALIBRATION, setting Q18 ON. To apply "H" to Q1 (X87-1020-00) base, setting Q1 ON.</td></tr>
<tr><td>Q19</td><td>METER GAIN control</td><td>To output "L" from $\overline{\text{GAIN}}$ control terminal of 6 pin of microprocessor IC7 when CALIBRATION SW (S10 : X25-2460-11) is ON, setting Q19 ON.
To apply "H" to Q1, Q2 bases, setting Q1, Q2 ON.</td></tr>
<tr><td>Q20</td><td>DOLBY ON/OFF SW</td><td>ON when CALIBRATION SW is set on BIAS or LEVEL position.</td></tr>
<tr><td>Q21, 30, 31</td><td>BIAS oscillator control and SW</td><td>To output "L" from $\overline{\text{BIAS}}$ control terminal of 4 pin of microprocessor IC7 when set on REC (including REC PAUSE) and "H" when set on other modes, to control as follows :
<table>
<tr><td>MODE</td><td>REC/REC PAUSE</td><td>OTHER MODES</td></tr>
<tr><td>Q21</td><td>ON</td><td>OFF</td></tr>
<tr><td>Q30</td><td>ON</td><td>OFF</td></tr>
<tr><td>Q31</td><td>OFF</td><td>ON</td></tr>
</table></td></tr>
<tr><td>Q22</td><td>LINE MUTE control</td><td>To output "L" from $\overline{\text{LM}}$ control terminal of 2 pin of microprocessor IC7 when MONITOR SW is set on TAPE, and on STOP,FF,REW or PLAY PAUSE, and on CALIBRATION, setting Q22 ON. To apply "H" to Q3, Q4 bases, setting Q3, Q4 ON.</td></tr>
<tr><td>Q23</td><td>REC MUTE control</td><td>To output "L" from $\overline{\text{RM}}$ control terminal of 1 pin of microprocessor IC7 when set on PLAY, FF, REW, PLAY PAUSE or REC PAUSE, setting Q23 ON.
To apply "H" to Q5, Q6 bases, setting Q5, Q6 ON.</td></tr>
<tr><td>Q24</td><td>Reel motor driving control voltage control</td><td>ON when set on PLAY or REC. To output "H" from PLAY control terminal of No. 10 pin of microprocessor IC7, setting Q24 ON and voltage on 4 pin of IC8 at 3.9V. OFF when set on other modes.
To set voltage on 4 pin of IC8 at 5.4~6.0V.</td></tr>
<tr><td>Q25 ~ Q27</td><td>Reset</td><td>To input "L" to $\overline{\text{RESET}}$ of 22 pin of microprocessor IC7 when POWER ON/OFF, resetting the microprocessor.</td></tr>
<tr><td>Q28, Q29</td><td>AUTO TAPE SEL. control</td><td>
<table>
<tr><td>TAPE</td><td>NORMAL</td><td>CrO_2</td><td>METAL</td></tr>
<tr><td>Q28</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
<tr><td>Q29</td><td>OFF</td><td>OFF</td><td>ON</td></tr>
</table></td></tr>
</table>

CIRCUIT DESCRIPTION

<table>
<tr><th>Components</th><th>Use/Function</th><th>Operation/Condition/Interchangeability</th></tr>
<tr><td>Q32, Q33</td><td>BIAS oscillating level select SW</td><td>Controlled by AUTO TAPE SEL. Q28, Q29.
<table>
<tr><td>TAPE</td><td>NORMAL</td><td>CrO_2</td><td>METAL</td></tr>
<tr><td>Q32</td><td>OFF</td><td>ON</td><td>OFF</td></tr>
<tr><td>Q33</td><td>ON</td><td>OFF</td><td>OFF</td></tr>
</table></td></tr>
<tr><td>Q34, Q35</td><td>Rotation DET. AMP.</td><td>To obtain switching signals (5 pulse/rotation) proportional to rotation speed of the reel base through the mechanism and shape their waveforms.</td></tr>
<tr><td>Q38 ~ Q40</td><td>+9V power supply</td><td>Power supply to stabilize the signal system amp.</td></tr>
<tr><td>Q41</td><td>+5V power supply</td><td>Power supply to stabilize Hi voltages in microprocessor and fluorescent display circuit.</td></tr>
<tr><td>Q42 ~ Q44</td><td>−9V power supply</td><td>Power supply to stabilize the signal system amp.</td></tr>
<tr><td>Q45, Q46</td><td>−18V power supply</td><td>Power supply to stabilize Lo voltages in the fluorescent display circuit.</td></tr>
<tr><td>IC1</td><td>PLAY TRIM CONTROL
(Replay F special adjustment)</td><td>Tone control amplifier (high band) used in the amplifier, performing high-pass adjustment for Replay F special.</td></tr>
<tr><td>IC2</td><td>BUFF. AMP.</td><td>Meter buffer amp.</td></tr>
<tr><td>IC3</td><td>Headphone AMP.</td><td></td></tr>
<tr><td>IC5</td><td>BUFF. AMP.</td><td>For MPX FILTER.</td></tr>
<tr><td>IC6</td><td>Filter for test tone</td><td></td></tr>
<tr><td>IC7</td><td>Microprocessor</td><td>Refer to description on terminals of microprocessor M50757-401SP.</td></tr>
<tr><td>IC8</td><td>Reel motor driving</td><td></td></tr>
<tr><td>IC9</td><td>Assist motor driving</td><td></td></tr>
<tr><td>IC10</td><td>Bias control</td><td></td></tr>
<tr><td>IC11</td><td>+12V power supply</td><td>Power supply to stabilize MOTOR system.</td></tr>
</table>

DISPLAY UNIT (X25-2460-11)

Components	Use/Function	Operation/Condition/Interchangeability
Q1,Q2	Peak hold reset	To form a flip-flop circuit in Q1, Q2 and reset Q2 by turning it ON every three seconds.
Q3,Q4	Peak hold control	ON when CALIBRATION SW (S10) is set on BIAS or LEVEL, cancelling the peak hold circuit.
IC1	Level meter driving	2 ch dynamic.

DOLBY UNIT (X30-1230-01, -02)

Components	Use/Function	Operation/Condition/Interchangeability
Q1~Q4	MPX FILTER SW	To output "H" from MPX control terminal of 37 pin of microprocessor IC7 when TIMER REC and MPX FILTER SW (S12 : X25-2460-11) is ON, setting Q1~Q4 and FILTER ON.
IC1	DOLBY B/C AMP.	Functions as DECODE and ENCODE.

METER AMP. UNIT (X87-1020-00)

Components	Use/Function	Operation/Condition/Interchangeability
Q1	METER MUTE SW	On when set on modes other than PLAY, REC, MONITOR (SOURCE), REC PAUSE (SOURCE only) or CALIBRATION. Refer to Q18 (X87-1020-00).
IC1	1/2 exponent compression AMP.	To output double wave rectified voltages proportional to 1/2 exponent of AC input signals.
IC2	DC AMP.	To amplify IC1 output voltages to required level.

CIRCUIT DESCRIPTION

REC/PLAYBACK AMP. UNIT (X87-1030-05)

Components	Use/Function	Operation/Condition/Interchangeability
Q1,Q2	REC MUTE SW	To output "L" from $\overline{\text{RM}}$ control terminal of 1 pin of microcomputer (X26-1200-10) when set on PLAY, FF, REW, PLAY PAUSE or REC PAUSE, setting Q23 (X26-1200-10) ON. To apply "H" to Q1, Q2 bases, setting Q1, Q2 ON.
Q3,Q4	Equalizer select SW (for METAL)	OFF when set on METAL TAPE and ON when setting on NORMAL/CrO_2 tape.
Q5,Q6	REC/PLAY equalizer select SW	Controlled by AUTO TAPE SEL. (X26-1200-10) of Q28, Q29. OFF when setting on NORMAL tape (120μs) and ON when setting on CrO_2/METAL tape.
IC1	Recording equalizer AMP.	
IC2	Playback equalizer AMP.	

BIAS OSC UNIT (X87-1190-03)

Component	Use/Function	Operation/Condition/Compatibility
IC1	HX-PRO IC	
Q1	Bias oscillator	Bias oscillator for erase head.
Q2	Bias oscillator control	Bias oscillator level control for recording.

3. FDGS (Ferrite with Double-Gap Sendust) Head

Normally, the erase head uses ferrite as the core material. However, as the ferrite is made by sintering metal oxide particles, small holes should be formed on the surface of erase head.

Each of the small holes functions as a very small head and, when recorded tape is transported on the surface, electromotive forces are generated on the gaps of the very small heads. This results in the generation of new magnetic fields, causing demagnetization of residual magnetic flux on tape. This effect is referred to as the contact demagnetization.

The reason why the contact demagnetization results in attenuation of high frequencies is that the high-frequency component of the residual magnetic flux on tape is recorded in shallower portion of the magnetic layer of tape. To reduce the contact demagnetization, it is desirable to select the erase head material that does not contain small holes and that has low coercive force so that the effect of very small heads is not efficient. This problem is solved by adhering the Sendust layer on the surface of ferrite core (**Fig. 1**).

The effect is clearly shown in **Fig. 2**. While the high-frequency component degrades after repeated playback using a ferrite head, such degradation is very small with an FDGS head.

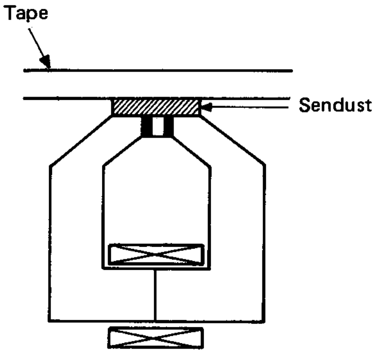
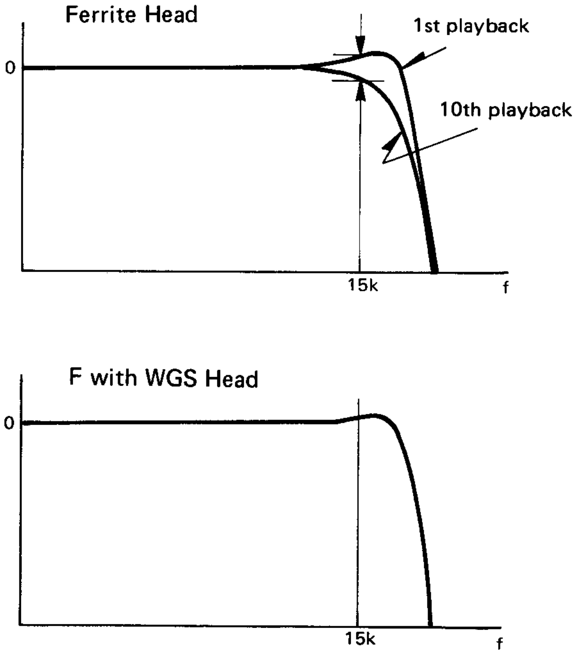


Fig. 1


Ferrite Head

F with WGS Head

Fig. 2

CIRCUIT DESCRIPTION

4. DOLBY HX-PRO SYSTEM

- **Improvement of Bias with the Dolby HX-PRO System**

The DOLBY HX-PRO system is designed to vary the AC bias so that the bias components which are affected by the audio signal can be compensated sequentially. This system is used to control the bias in the servo system so that the effective bias amount (consisting of the "AC bias" and "audio signal") which is actually applied to the head is controlled at a fixed level.

When this system is used, the low and high frequency adjustments, which respectively require an appropriate compromise so that the optimum recording frequency response of a single frequency is obtained, are made quite easily.

Also, the output drop due to self-bias at high frequencies is eliminated. This results in a flat response over a widened high frequency range. **Fig. 3** shows an example of the improvement in the frequency response.

5. Outline of μPC1297CA (X87-1190-03 : IC1)

- **Dolby HX-PRO System and Construction/Operation of the μPC1297CA**

The system construction diagram is shown in **Fig. 4** and the outline of operation is shown in **Fig. 5**. The effective bias is detected at the edge of the tape head. The high-frequency components (more than 10kHz) are extracted from the detected signal by the filter, and converted into a DC voltage. The resultant voltage is compared with the reference voltage for setting the bias amount, and the AC bias is controlled by the VCA (Voltage Controlled Amplifier) circuit so that a constant bias is obtained. By switching the reference voltage, the bias level can be set for each type of tape used.

- **Dolby HX-PRO System Circuit**

The μPC1297CA is an IC which control the effective bias amount that is applied to the recording head in the tape deck. "HX" stands for Headroom Extension. With this system, the dynamic range is greatly extended to the high frequencies, while the high frequency response range is improved.

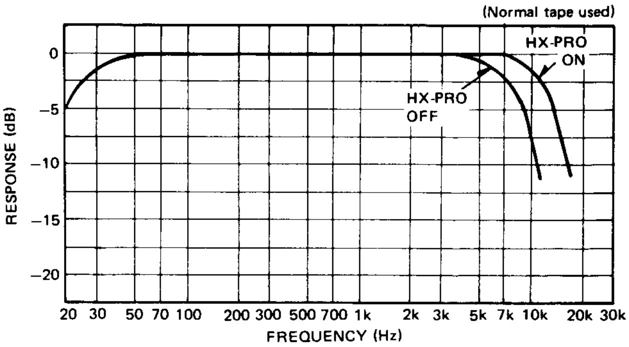


Fig. 3 **Improvement example of the tape output frequency response with Dolby HX-PRO**

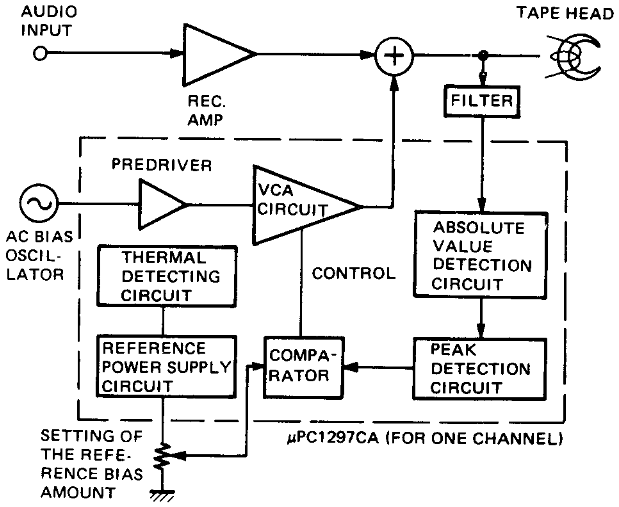

AUDIO INPUT
TAPE HEAD
REC. AMP
FILTER
PREDRIVER
VCA CIRCUIT
AC BIAS OSCIL-LATOR
THERMAL DETECTING CIRCUIT
CONTROL
ABSOLUTE VALUE DETECTION CIRCUIT
REFERENCE POWER SUPPLY CIRCUIT
COMPA-RATOR
PEAK DETECTION CIRCUIT
SETTING OF THE REFE-RENCE BIAS AMOUNT
μPC1297CA (FOR ONE CHANNEL)

Fig. 4 **System configuration of Dolby HX-PRO**

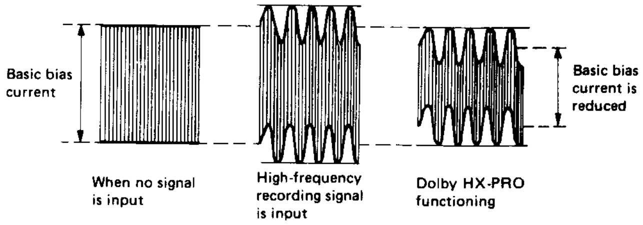

Basic bias current
Basic bias current is reduced
When no signal is input
High-frequency recording signal is input
Dolby HX-PRO functioning

Fig. 5 **Operation principle of Dolby HX-PRO**

Features

- Wider power voltage range. Vcc = 8~18V.
- Two-channel Dolby HX-PRO system provided.
- Lower 2nd harmonics distrotion. −70dB TYP.
- Bias level can be set for each type of head used.
- Thermal detecting protection circuit built-in.
- Packaged in an 18-pin shrink DIP (dual inline package).

Explanation of pin name

Pin No.	Symbol	Pin name	Pin No.	Symbol	Pin name
1	VST	Reference power supply pin	10	VIN(O)	Bias oscillator input pin
2	VR1	Comparator reference pin 1	11	VOUT22	VCA output pin 21
3	VIN(R)1	Signal input pin 1	12	VOUT21	VCA output pin 22
4	PH1	Peak hold capacitor pin 1	13	COUT2	Comparator output pin 2
5	CIN1	Comparator input pin 1	14	CIN2	Comparator input pin 2
6	COUT1	Comparator output pin 1	15	PH2	Peak hold capacitor pin 2
7	VOUT11	VCA output pin 11	16	VIN(R)2	Signal input pin 2
8	VOUT12	VCA output pin 12	17	VR2	Comparator reference pin 2
9	GND	GND (ground) pin	18	Vcc	Power supply pin

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	CASSETTE TAPE DECK SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
CASSETTE DECK SECTION	TAPE: NORMAL, DOLBY: OFF, INPUT: LINE, CALIBRATION: CENTER					0dBs=0.775V	
I REC/PLAY HEAD							
[1]	DEMAGNETIZATION	–	–	POWER: OFF Remove the cassette door.	REC/PLAY head	Demagnetize the REC/PLAY head with a head demagnetizer.	
[2]	CLEANING	–	–	PLAY	REC/PLAY head erase head, capstan, pinch roller.	Clean the REC/PLAY head erase head, capstan and pinch roller using a cotton swab slightly damped with alcohol.	
[3]	AZIMUTH	MTT-114, TCC-153 10kHz, -10dB	(B)	PLAY	Azimuth adjustment screw	Adjust the azimuth adjustment screw so that the output voltage is maximized in both forward and reverse direction.	(a)
II DC MOTOR							
(1)	TAPE SPEED	MTT-111, TCC-110 3kHz	(B)	PLAY	Trimming poten tiometer in the DC motor	Adjust the tape speed so that a 3kHz signal is produced at the center of the tape.	(b)
III PC BOARD (X87-1020-00, X87-1030-05, X26-1200-10)							
<1>	PLAYBACK LEVEL	MTT-150	(B)	PLAY	VR3 (L) VR4 (R) (X87-1030 B/2)	Output level: -1.2dBs	
		MTT-256				Output level: -4.0dBs	
		MTT-256U, TCC-160				Output level: 0dBs	
<2>	PLAY TRIM CONTROL	MTT-256 MTT-256U, TCC-160 315Hz, 10kHz	(B)	PLAY	VR1 (L) VR2 (R) (X26-1200-10)	Adjust the variable resistors so that the level of 10kHz is 0.2dBs to the level of 315kHz.	
<3>	BIAS CURRENT	(A) 1kHz, -30dBs 10kHz, -30dBs	(B)	Adjust REC and BALANCE so that the REC monitor output becomes -24dBs at 1kHz, then record and reproduce signal of 1kHz and 10kHz in alternation.	VR 9(L) VR10(R) (X26-1200-10)	Adjust the bias current adjusting VR so that the playback level of the 10kHz signal is +0.5dBs higher than that of the 1kHz signal when recoding a 1kHz signal and a 10kHz signal alternately.	
<4>	RECORD LEVEL	(A) 1kHz, -30dBs	(B)	Record and reproduce a 1kHz signal under the conditions set in <3>.	VR1 (L) VR2 (R) (X87-1030 A/2)	Adjust the variable resistors so that a playback level of -24dBs is obtained.	
<5>	FL METER(L)	(A) 1kHz, -10dBs	–	REC PAUSE Adjust REC and LEVEL VR so that the monitor output is -4.7dBs at 1kHz.	VR1 (X87-1020-00)	0dB FL segment is completely lit.	
	FL METER(R)				VR13 (X26-1200-10)		
<6>	CLOCK ADJ	–	TP3/TP4	CALIBRATION SW: BIAS	VR17 (X26-1200-10)	10kHz	(c)
<7>	TEST TONE	–	TP3	1) CALIBRATION SW: LEVEL	VR14 (X26-1200-10)	-32.2dBs	(d)
			TP3	2) CALIBRATION SW: BIAS	VR15 (X26-1200-10)	-32.5dBs	
			TP4	3) CALIBRATION SW: BIAS	VR16 (X26-1200-10)	-32.2dBs	

REGLAGE

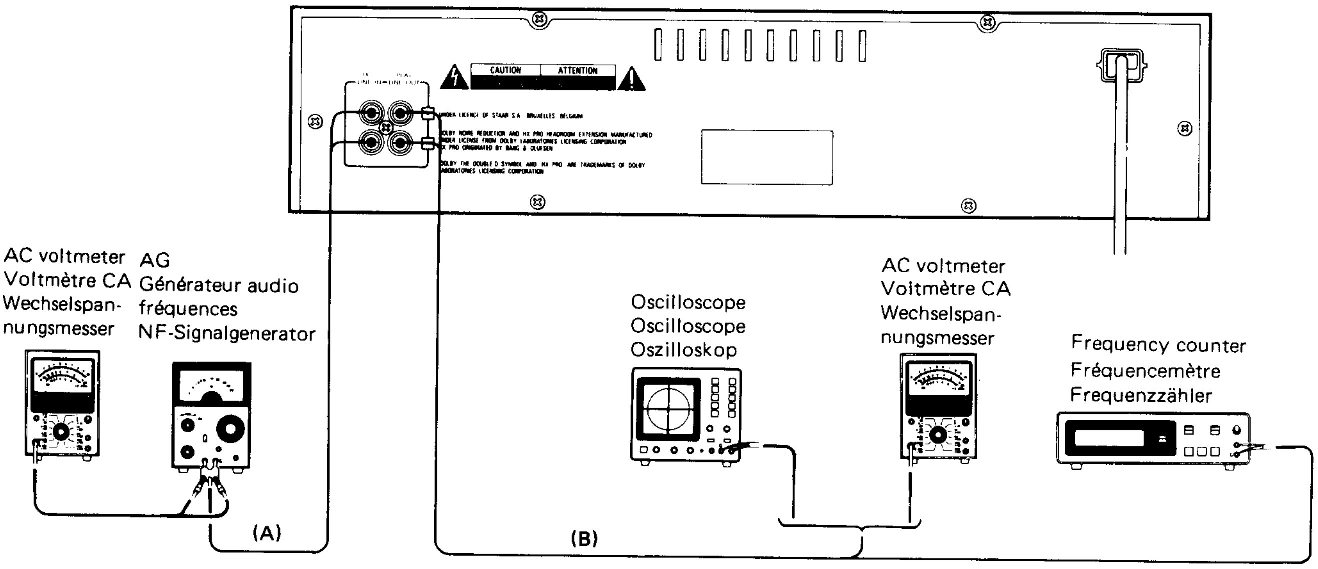
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU MAGNETO -PHONE A CASSETTE	POINTS DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION DU MAGNETOPHONE TAPE: NORMAL, DOLBY: OFF, ENTREE: LINE, CALIBRAGE: MILIEU 0dBs=0,775V							
I TETE D'ENREGISTREMENT/LECTURE							
[1]	DEMAGNETISATION	–	–	POWER: OFF Eloigner la porte.	Tête D'ENREGISTREMENT/ LECTURE	Demagnétiser la tête D'ENREGISTREMENT/LECTURE avec un démagnétiseur de tête.	
[2]	NETTOYAGE	–	–	PLAY	Tête D'ENREGISTREMENT/ LECTURE tête d'effacement, cabestan, galetpresseur.	Nettoyer la tête D'ENREGISTREMENT/LECTURE la tête d'effacement, le cabestan et le galetpresseur avec un coton-tige légèrement imbibé d'alcool.	
[3]	AZIMUT	MTT-114, TCC-153 10kHz, -10dB	(B)	PLAY	Vis d'azimut	Ajuster la vis de réglage de l'azimut de façon que la tension de sortie soit maximale à la fois en avant et en arrière, de la bande d'essai.	(a)
II MOTEUR CC							
(1)	VITESSE DE DEFILEMENT	MTT-111, TCC-110 3kHz	(B)	PLAY	Résistance ajustable du moteur CC	Régler la vitesse de bande de façon qu'un signal de 3kHz soit produit au centre de la bande.	(b)
III PLAQUE IMPRIMEE (X87-1020-00,X87-1030-05,X26-1200-10))							
<1>	NIVEAU DE LECTURE	MTT-150	(B)	PLAY	VR3 (G) VR4 (D) (X87-1030 B/2)	Niveau de sortie: -1,2dBs	
		MTT-256				Niveau de sortie: -4,0dBs	
		MTT-256U, TCC-160				Niveau de sortie: 0dBs	
<2>	COMMANDE D'APAIRAGE DE LECTURE	MTT-256 MTT-256U TCC-160 315Hz, 10kHz	(B)	PLAY	VR1 (G) VR2 (D) (X26-1200-10)	Ajuster les résistances variables de manière à ce que le niveau de 10kHz soit 0,2dBs au niveau de 315kHz.	
<3>	COURANT DE POLARISATION	(A) 1kHz, -30dBs 10kHz, -30dBs	(B)	Régler REC et BALANCE de façon que la sortie de moniteur REC soit de -24dBs à 1kHz, puis enregistrer et reproduire des signaux de 1kHz et 10kHz en alternance.	VR 9(G) VR10(D) (X26-1200-10)	Ajuster le courant de polarisation en ajustant VR pour que le niveau de lecture du signal 10kHz soit de +0,5dBs supérieur à celui du signal 1kHz lors de l'enregistrement d'un signal 1kHz et d'un signal de 10kHz alternativement.	
<4>	NIVEAU D'ENREGISTREMENT	(A) 1kHz, -30dBs	(B)	Enregistrer et reproduire un signal de 1kHz dans les conditions précisées en <3>.	VR1 (G) VR2 (D) (X87-1030 A/2)	Ajuster les résistances variables de façon à obtenir un niveau de lecture de -24dBs.	
<5>	FL METER(G)	(A) 1kHz, -10dBs	–	REC PAUSE Ajuster REC et NIVEAU VR de façon à ce que la sortie moniteur soit de -4,7dBs à 1kHz.	VR1 (X87-1020-00)	Le segment de FL 0dB soit complètement allumé.	
	FL METER(D)				VR13 (X26-1200-10)		
<6>	MONTRE REGLAGE	–	TP3/TP4	CALIBRATION SW: BIAS	VR17 (X26-1200-10)	10kHz	(c)
<7>	TEST TONE	–	TP3	1) CALIBRATION SW: LEVEL	VR14 (X26-1200-10)	-32,2dBs	(d)
			TP3	2) CALIBRATION SW: BIAS	VR15 (X26-1200-10)	-32,5dBs	
			TP4	3) CALIBRATION SW: BIAS	VR16 (X26-1200-10)	-32,2dBs	

ABGLEICH

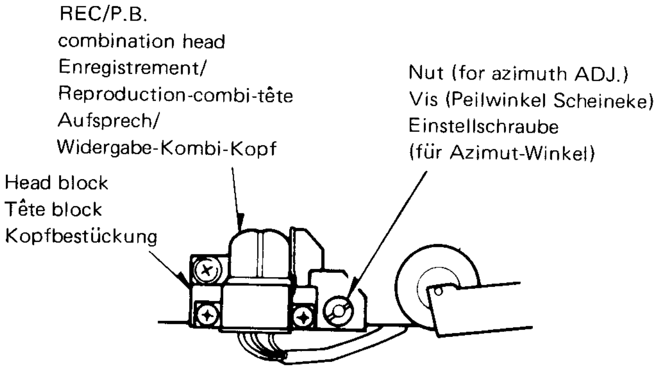
NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	KASSETTENGERÄT-EINSTELLUNG	ABGLEICH PUNKTE	ABGLEICHEN FÜR	ABB.
CASSETTEN DECK ABTEILUNG TAPE: NORMAL, DOLBY: OFF, EINGANG: LINE, KALIBREIRUNG: MITTE 0dBs=0,775V							
Ⅰ AUFNAHME/WIEDERGABE-KOPF							
[1]	ENTMAGNETISIERUNG	–	–	POWER: OFF Den Kassettenfach deckel oben herausziehen.	AUFNAHME/WIEDERGABE-Kopf	Entmagnetisierung von dem AUFNAHME/WIEDERGABE-Kopf mit einem Tonkopf Entmagnetisierungsdrossel.	
[2]	REINIGUNG	–	–	PLAY	AUFNAHME/WIEDERGABE Kopf Löschkopf, Tonwelle, Andruckrolle.	AUFNAHME/WIEDERGABE Kopf, Löschkopf, Tonwelle und Andruckrolle mit einem leicht mit Alkohol befeuchteten Wattebausch reinigen.	
[3]	AZIMUT-EINSTELLUNG	MTT-114, TCC-153 10kHz. -10dB	(B)	PLAY	Azimut-Einstellschraube	Die Azimut Justierschraube so einstellen,da die maximale Ausgangsspannung in Vorwärts-Reverserichtung und erzielt.	(a)
Ⅱ GLEICHSTROMMOTOR							
(1)	BANDGESCHWINDIGKEIT	MTT-111, TCC-110 3kHz	(B)	PLAY	Trimmer potentiometer am Gleichstrommotor	Die Bandgeschwindigkeit so justieren, da ein 3kHz Signal auf der Mitte des Bands erzeugt wird.	(b)
Ⅲ GEDRUCKTE SCHALTPLATTE (X87-1020-00,X87-1030-05,X26-1200-10)							
<1>	WIEDERGABE-PEGEL	MTT 150	(B)	PLAY	VR3 (L) VR4 (R) (X87-1030 B/2)	Ausgangspegel: -1,2dBs	
		MTT 256				Ausgangspegel: -4,0dBs	
		MTT 256U, TCC-160				Ausgangspegel: 0dBs	
<2>	WIEDERGABE-TRIMMERREGLER	MTT-256 MTT-256U TCC-160 315Hz. 10kHz	(B)	PLAY	VR1 (L) VR2 (R) (X26-1200-10)	Die Regelwiderstände so einstellen, da der pegel von 10kHz 0,2dBs zum pegel von 315kHz beträgt.	
<3>	LEERLAUFSTROM	(A) 1kHz. -30dBs 10kHz. -30dBs	(B)	REC und BALANCE so justieren, da der REC Monitorausgang -24dBs bei 1kHz wird, und danach abwechselnd Signale von 1kHz und 10kHz aufnehmen und wiedergeben.	VR 9 (L) VR10 (R) (X26-1200-10)	Den Vormagnetisierungsstrom-Regelwiederstand so einstellen. daß der Wiedergabepegel des 10kHz Signals um +0,5dBs höhen ist als der des 1kHz Signals, wenn ein 1kHz Signal und ein 10kHz Signal abwechselnd aufgenommen wurde.	
<4>	AUFNAHMEPEGEL	(A) 1kHz. -30dBs	(B)	Ein 1kHz Signal unter den in Punkt <3> beschriebenen Bedingungen aufnehmen und reproduzieren.	VR1 (L) VR2 (R) (X87-1030 A/2)	Die Regelwiderstände so justieren, da ein wiedergabepegel von -24dBs erzielt wird.	
<5>	FL METER(L)	(A) 1kHz. -10dBs	–	REC PAUSE REC und PEGEL VR so einstellen,da der Monitorausgang bei 1kHz, -4,7dBs ist.	VR1 (X87-1020-00)	Die Regelwiderstände so justieren, da das 0dB Segment vollständig leuchtet.	
	FL METER(R)				VR13 (X26-1200-10)		
<6>	UHR ABGLEICH	–	TP3/TP4	CALIBRATION SW: BIAS	VR17 (X26-1200-10)	10kHz	(c)
<7>	TEST TONE	–	TP3	1) CALIBRATION SW: LEVEL	VR14 (X26-1200-10)	-32,2dBs	(d)
			TP3	2) CALIBRATION SW: BIAS	VR15 (X26-1200-10)	-32,5dBs	
			TP4	3) CALIBRATION SW: BIAS	VR16 (X26-1200-10)	-32,2dBs	

ADJUSTMENT/REGLAGE/ABGLEICH

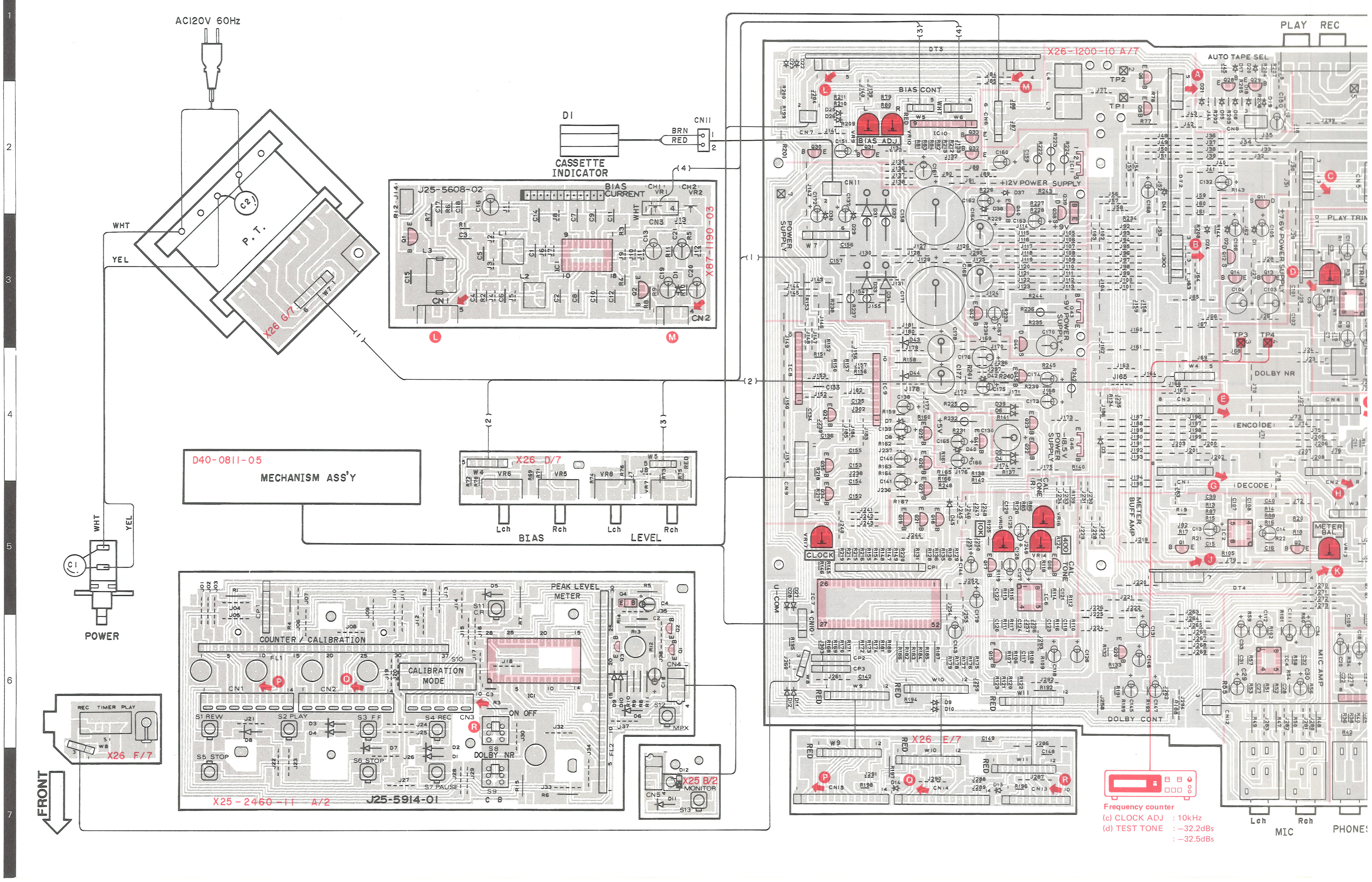
SYSTEM CONNECTIONS/RACCORDEMENTS DU SYSTEME/SYSTEM-ANSCHLUSSE


CAUTION
ATTENTION
AC voltmeter
Voltmètre CA
Wechselspannungsmesser
AG
Générateur audio fréquences
NF-Signalgenerator
(A)
Oscilloscope
Oscilloscope
Oszilloskop
AC voltmeter
Voltmètre CA
Wechselspannungsmesser
Frequency counter
Fréquencemètre
Frequenzzähler
(B)

(a) AZIMUTH

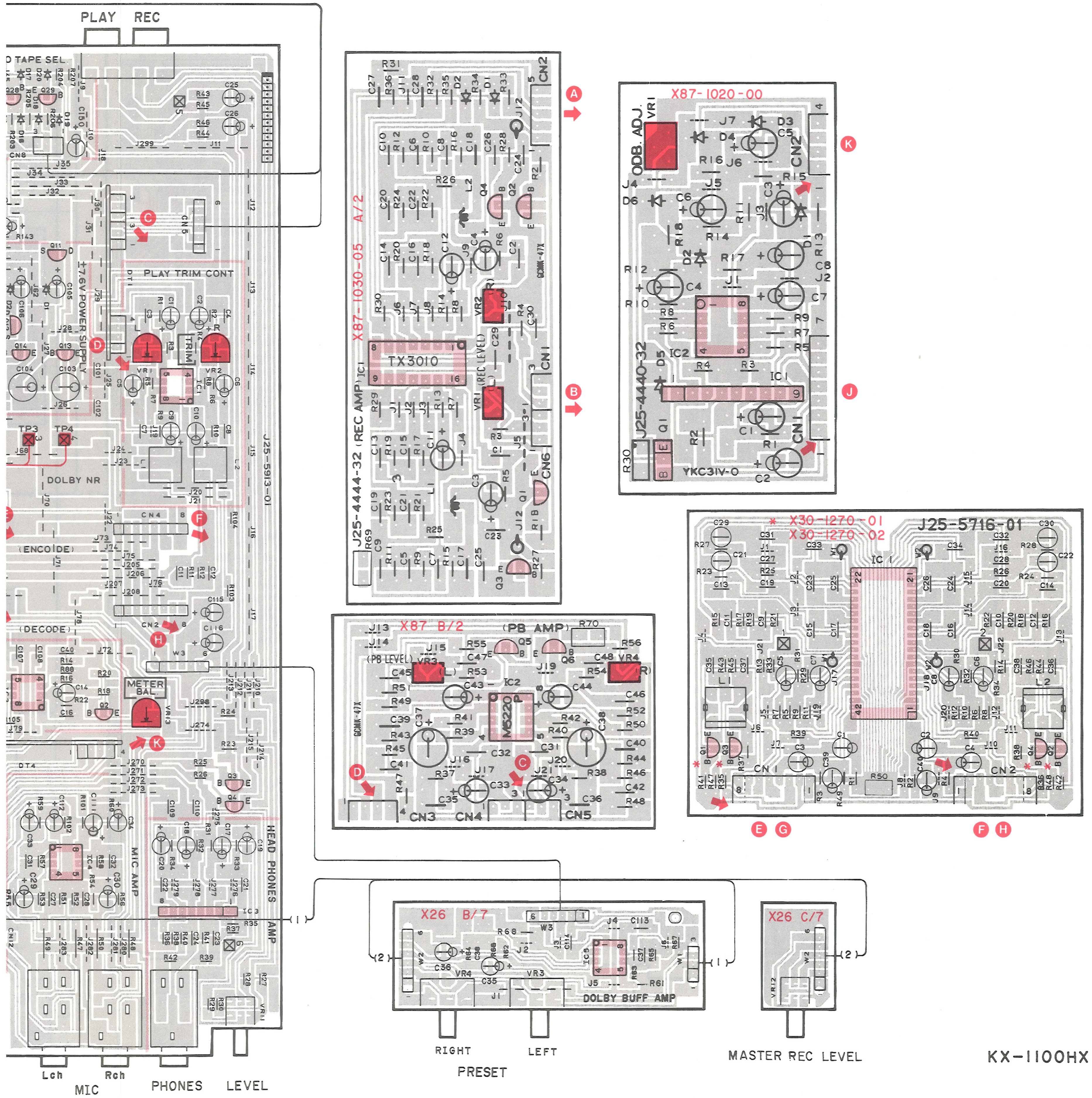

REC/P.B.
combination head
Enregistrement/
Reproduction-combi-tête
Aufsprech/
Widergabe-Kombi-Kopf
Nut (for azimuth ADJ.)
Vis (Peilwinkel Scheineke)
Einstellschraube
(für Azimut-Winkel)
Head block
Tête block
Kopfbestückung

PC BOARD (COMPONENT SI


AC120V 60Hz
D1
CASSETTE INDICATOR
CN11
BRN
RED
P.T.
C2
C1
WHT
YEL
X26 G/7
J25-5608-02
BIAS CURRENT
CH1 VR1
CH2 VR2
CN1
CN2
CN3
X87-1190-03
L
M
D40-0811-05
MECHANISM ASS'Y
X26 D/7
W4
W5
VR6
VR5
VR8
VR7
Lch
Rch
BIAS
LEVEL
POWER
REC TIMER PLAY
X26 F/7
FRONT
PEAK LEVEL METER
COUNTER / CALIBRATION
CALIBRATION MODE
S1 REW
S2 PLAY
S3 FF
S4 REC
S5 STOP
S6 STOP
S7 PAUSE
S8 DOLBY NR
ON OFF
S10
S11
S12
MPX
P
Q
R
X25-2460-11 A/2
J25-5914-01
X25 B/2
MONITOR
S13
X26-1200-10 A/7
DT3
BIAS CONT
BIAS ADJ
+12V POWER SUPPLY
POWER SUPPLY
-9V POWER SUPPLY
+5V
-18.5V POWER SUPPLY
CAL TONE (R)
CAL TONE (L)
CLOCK
400
10K
U-COM
METER BUFF AMP
DOLBY CONT
DOLBY NR
ENCODE
DECODE
METER BAL
AUTO TAPE SEL
+7.6V POWER SUPPLY
PLAY TRIM
MIC AMP
PLAY
REC
TP1
TP2
TP3
TP4
A
B
C
D
E
G
H
J
K
X26 E/7
W9
W10
W11
CN14
CN15
CN13
RED
Lch
Rch
MIC
PHONES
1
2
3
4
5
6
7

Frequency counter
(c) CLOCK ADJ : 10kHz
(d) TEST TONE : –32.2dBs
: –32.5dBs

OMPONENT SIDE VIEW)


PLAY
REC
TAPE SEL
PLAY TRIM CONT
+7.6V POWER SUPPLY
DOLBY NR
(ENCODE)
(DECODE)
METER BAL
HEAD PHONES AMP
MIC AMP
J25-5913-01
X87-1030-05 A/2
J25-4444-32 (REC AMP)
TX3010
(REC LEVEL)
X87-1020-00
ODB. ADJ.
J25-4440-32
YKC3IV-0
X87 B/2
(PB AMP)
(PB LEVEL)
M5220P
X30-1270-01
X30-1270-02
J25-5716-01
X26 B/7
DOLBY BUFF AMP
X26 C/7
Lch
Rch
MIC
PHONES
LEVEL
RIGHT
LEFT
PRESET
MASTER REC LEVEL
A
B
C
D
E
F
G
H
J
K

KX-1100HX (K)

Refer to the schematic diagram for the values of resistors and capacitors.

(X25-2460-11)

IC1

1	–18.5V

	B	C	E
Q1, 2	–	–	–18.5V
Q4	–	–	–18.5V

(X26-1200-10)

IC1

1 ~ 3	0V
4	–7.6V
5 ~ 7	0V
8	7.6V

IC2, 3

1 ~ 3	0V
4	–9.6V
5 ~ 7	0V
8	9.3V

IC4

1 ~ 3	0V
4	–9.6V
5 ~ 7	0V
8	9.0V

IC5

1 ~ 3	0V
4	–7.9V
5 ~ 7	0V
8	7.2V

IC6

1 ~ 3	0V
4	–9.6V
5 ~ 7	0V
8	9.3V

IC7

21	0V
26	0V
34	–18.2V
51, 52	5V

IC8, 9

1	0V
7, 8	12V

IC11

1	22.3V
2	0V
3	12V

	B	C	E
Q13	8.2V	9.3V	7.6V
Q14	–8.2V	–9.6V	–7.6V
Q15	–	9.3V	–
Q18, 19	–	–	5V
Q20	–	–	–9.6V
Q21 ~ 23	–	–	5V
Q25, 26	0.6V	0V	0V
Q27	0V	5V	0V
Q31 ~ 33	–	–	–10.2V
Q39	10V	12V	9.4V
Q40	5.8V	10	5.2V
Q41	5.6V	10.7V	5V
Q42	–0.6V	–10.8V	0V
Q43	–	–22.4V	–10.2V
Q45	–5.7V	–18.8V	–5V
Q46	–18.8V	–41.2V	–18.2V

	G	S	D
Q11	8.2V	8.2V	9.3V
Q12	–9.6V	–9.6V	–8.2V
Q38	10V	10V	12V
Q44	–19V	–19V	–10.8V

(X30-1270-01)

IC1

1	9.3V
2	0V
3	–8.7V
4 ~ 12	0V
13, 14	–9.6V
15	0V
16, 17	–9.5V
18 ~ 25	0V
26, 27	–9.5V
28	0V
29, 30	–9.7V
31 ~ 37	0V
38	3.5V
39 ~ 41	0V
42	–10V

(X30-1270-02)

IC1

1	9.3V
2	0V
3	–8.7V
4	0V
5	SOURCE : 0V TAPE : 3.3V
6 ~ 12	0V
13, 14	–9.7V
15	0V
16, 17	–9.6V
18 ~ 25	0V
26, 27	–9.6V
28	0V
29, 30	–9.7V
31 ~ 37	0V
38	3.5V
39 ~ 41	0V
42	–10V

(X87-1020-00)

IC1

2	0V
3	0.6V
4 ~ 6	0V
7	0.6V
8	0V
9	9.3V

IC2

1	0V
4	–10V
7	0V
8	9.3V

(X87-1030-05)

IC1

1 ~ 5	0V
6	–10V
7, 8	0V
9	M : –9.7V C : 0V N : 7.5V
10	0V
11	9.3V
12 ~ 16	0V

IC2

1 ~ 3	0V
4	–7.5V
5 ~ 7	0V
8	7.5V

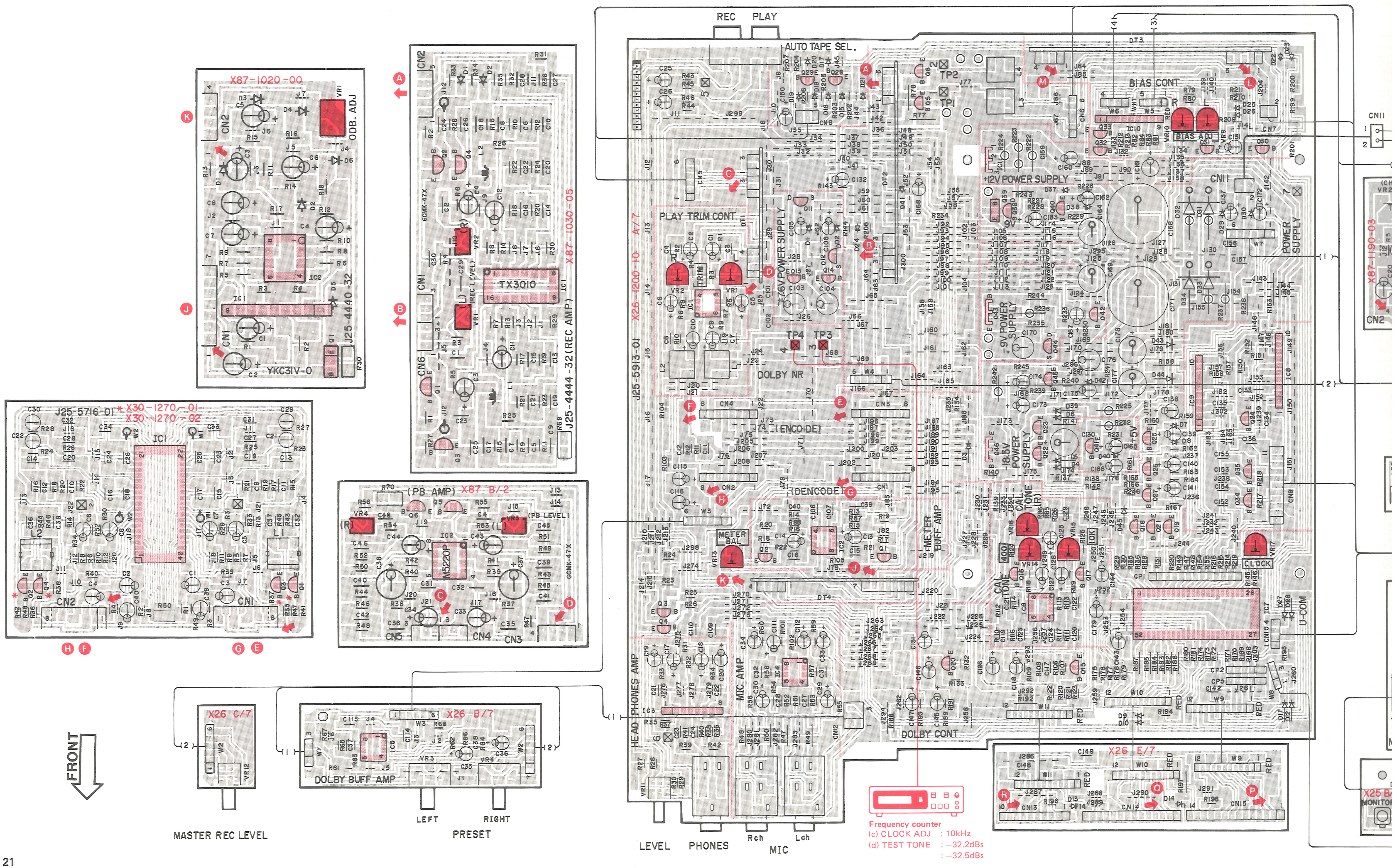
(X87-1190-03)

IC1

1	–5.8V
2	–9.7V
3	–5.8V
4	–9.1V
5	–9.6V
6	–8.7V
7, 8	–4.2V
9	–10V
10	–8.4V
11, 12	–4.2V
13	–8.7V
14	–9.6V
15	–9.1V
16	–5.8V
17	–9.7V
18	9.3V

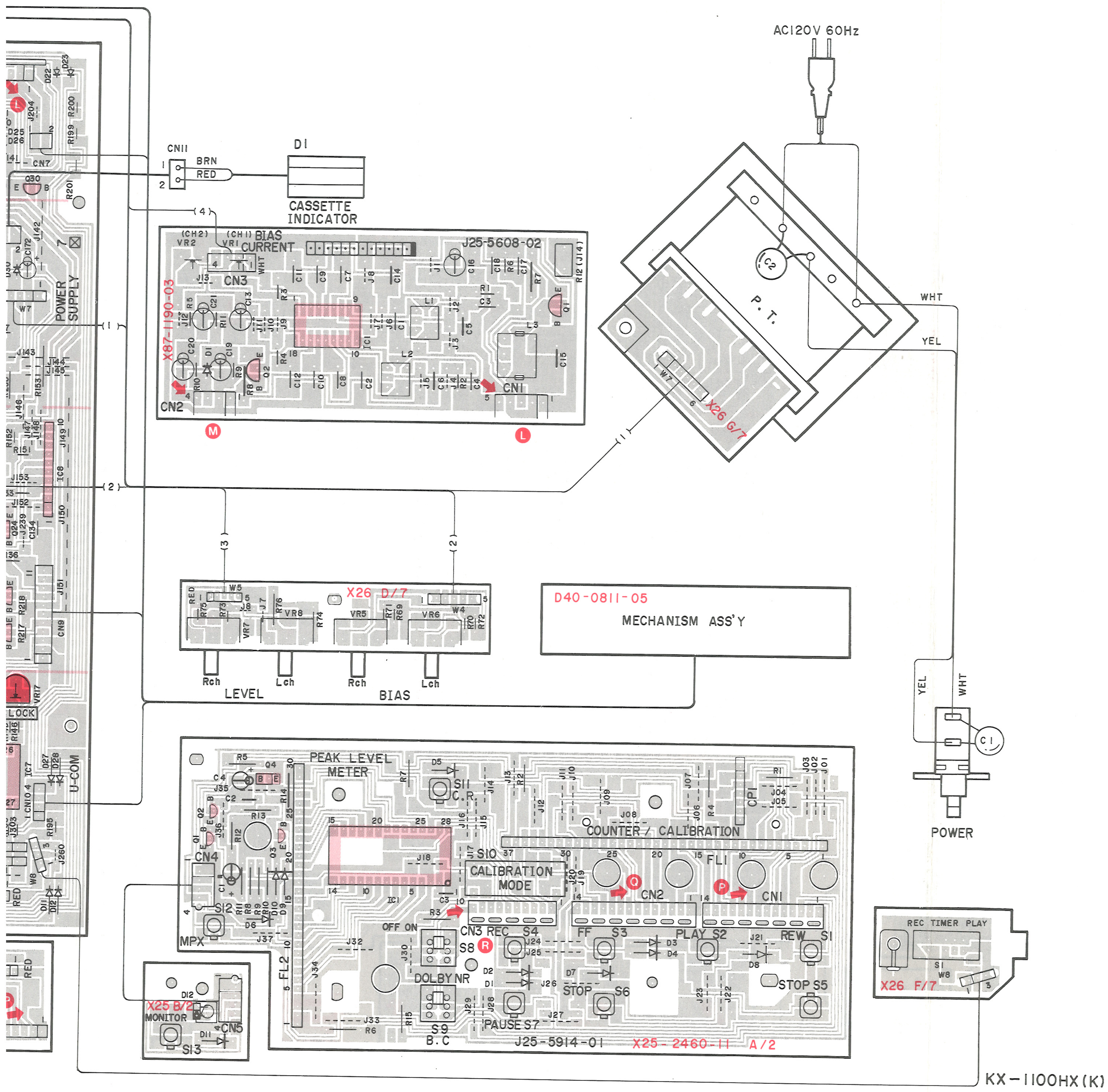
	B	C	E
Q1	–9.7V	M : 4.8V C : –1.2V N : –4.2V	–9.9V
Q2	M : 6.3V C : 0V N : –3.3V	9.3V	M : 5.8V C : –0.6V N : –3.9V

PC BOARD (FOIL SI


X87-1020-00
ODB. ADJ
J25-4440-32
YKC31V-0
CN1
CN2
IC1
IC2
VR1
X87-1030-05
J25-4444-32 (REC AMP)
TX3010
CN6
CN1
CN2
J25-5716-01
X30-1270-01
X30-1270-02
IC1
CN1
CN2
(PB AMP) X87 B/2
(PB LEVEL)
M5220P
IC2
CN3
CN4
CN5
REC
PLAY
AUTO TAPE SEL.
TP2
TP1
BIAS CONT
BIAS ADJ
CN11
+12V POWER SUPPLY
PLAY TRIM CONT
+26V POWER SUPPLY
TRIM
TP4
TP3
DOLBY NR
-9V POWER SUPPLY
POWER SUPPLY
X26-1200-10 A/7
J25-5913-01
(ENCODE)
(DENCODE)
METER BAL
METER BUFF AMP
-18.5V POWER SUPPLY
+5V
CAL TONE
CAL TONE (L)
(R)
CLOCK
CP1
U-COM
IC7
DT3
DT4
HEAD PHONES AMP
MIC AMP
DOLBY CONT
X26 E/7
CN13
CN14
CN15
X26 C/7
X26 B/7
DOLBY BUFF AMP
VR3
VR4
FRONT
MASTER REC LEVEL
LEFT
RIGHT
PRESET
LEVEL
PHONES
Rch
Lch
MIC
X87-1190-03
CN2
X25 B
MONITOR

Frequency counter
(c) CLOCK ADJ : 10kHz
(d) TEST TONE : −32.2dBs
: −32.5dBs

OARD (FOIL SIDE VIEW)


AC120V 60Hz
CN11
BRN
RED
D1
CASSETTE INDICATOR
(CH2) VR2
(CH1) VR1
BIAS CURRENT
J25-5608-02
CN3
X87-1190-03
CN2
CN1
M
L
P. T.
X26 G/7
WHT
YEL
POWER SUPPLY
X26 D/7
RED
W5
VR8
VR5
VR6
W4
Rch
Lch
LEVEL
BIAS
D40-0811-05
MECHANISM ASS'Y
YEL
WHT
C1
POWER
PEAK LEVEL METER
COUNTER / CALIBRATION
CALIBRATION MODE
S10
S11
FL1
FL2
CN4
S12
MPX
OFF ON
CN3 REC S4
S8
R
Q
P
FF S3
PLAY S2
REW S1
DOLBY NR
STOP S6
STOP S5
PAUSE S7
S9
B.C
J25-5914-01
X25-2460-11 A/2
X25 B/2
MONITOR
CN5
S13
U-COM
LOCK
REC TIMER PLAY
X26 F/7
S1
W8
KX-1100HX(K)

Refer to the schematic diagram for the values of resistors and capacitors.

(X25-2460-11)

IC1

1	−18.5V

	B	C	E
Q1, 2	−	−	−18.5V
Q4	−	−	−18.5V

(X26-1200-10)

IC1

1 ~ 3	0V
4	−7.6V
5 ~ 7	0V
8	7.6V

IC2, 3

1 ~ 3	0V
4	−9.6V
5 ~ 7	0V
8	9.3V

IC4

1 ~ 3	0V
4	−9.6V
5 ~ 7	0V
8	9.0V

IC5

1 ~ 3	0V
4	−7.9V
5 ~ 7	0V
8	7.2V

IC6

1 ~ 3	0V
4	−9.6V
5 ~ 7	0V
8	9.3V

IC7

21	0V
26	0V
34	−18.2V
51, 52	5V

IC8, 9

1	0V
7, 8	12V

IC11

1	22.3V
2	0V
3	12V

	B	C	E
Q13	8.2V	9.3V	7.6V
Q14	−8.2V	−9.6V	−7.6V
Q15	−	9.3V	−
Q18, 19	−	−	5V
Q20	−	−	−9.6V
Q21 ~ 23	−	−	5V
Q25, 26	0.6V	0V	0V
Q27	0V	5V	0V
Q31 ~ 33	−	−	−10.2V
Q39	10V	12V	9.4V
Q40	5.8V	10	5.2V
Q41	5.6V	10.7V	5V
Q42	−0.6V	−10.8V	0V
Q43	−	−22.4V	−10.2V
Q45	−5.7V	−18.8V	−5V
Q46	−18.8V	−41.2V	−18.2V

	G	S	D
Q11	8.2V	8.2V	9.3V
Q12	−9.6V	−9.6V	−8.2V
Q38	10V	10V	12V
Q44	−19V	−19V	−10.8V

(X30-1270-01)

IC1

1	9.3V
2	0V
3	−8.7V
4 ~ 12	0V
13, 14	−9.6V
15	0V
16, 17	−9.5V
18 ~ 25	0V
26, 27	−9.5V
28	0V
29, 30	−9.7V
31 ~ 37	0V
38	3.5V
39 ~ 41	0V
42	−10V

(X30-1270-02)

IC1

1	9.3V
2	0V
3	−8.7V
4	0V
5	SOURCE : 0V TAPE : 3.3V
6 ~ 12	0V
13, 14	−9.7V
15	0V
16, 17	−9.6V
18 ~ 25	0V
26, 27	−9.6V
28	0V
29, 30	−9.7V
31 ~ 37	0V
38	3.5V
39 ~ 41	0V
42	−10V

(X87-1020-00)

IC1

2	0V
3	0.6V
4 ~ 6	0V
7	0.6V
8	0V
9	9.3V

IC2

1	0V
4	−10V
7	0V
8	9.3V

(X87-1030-05)

IC1

1 ~ 5	0V
6	−10V
7, 8	0V
9	M : −9.7V C : 0V N : 7.5V
10	0V
11	9.3V
12 ~ 16	0V

IC2

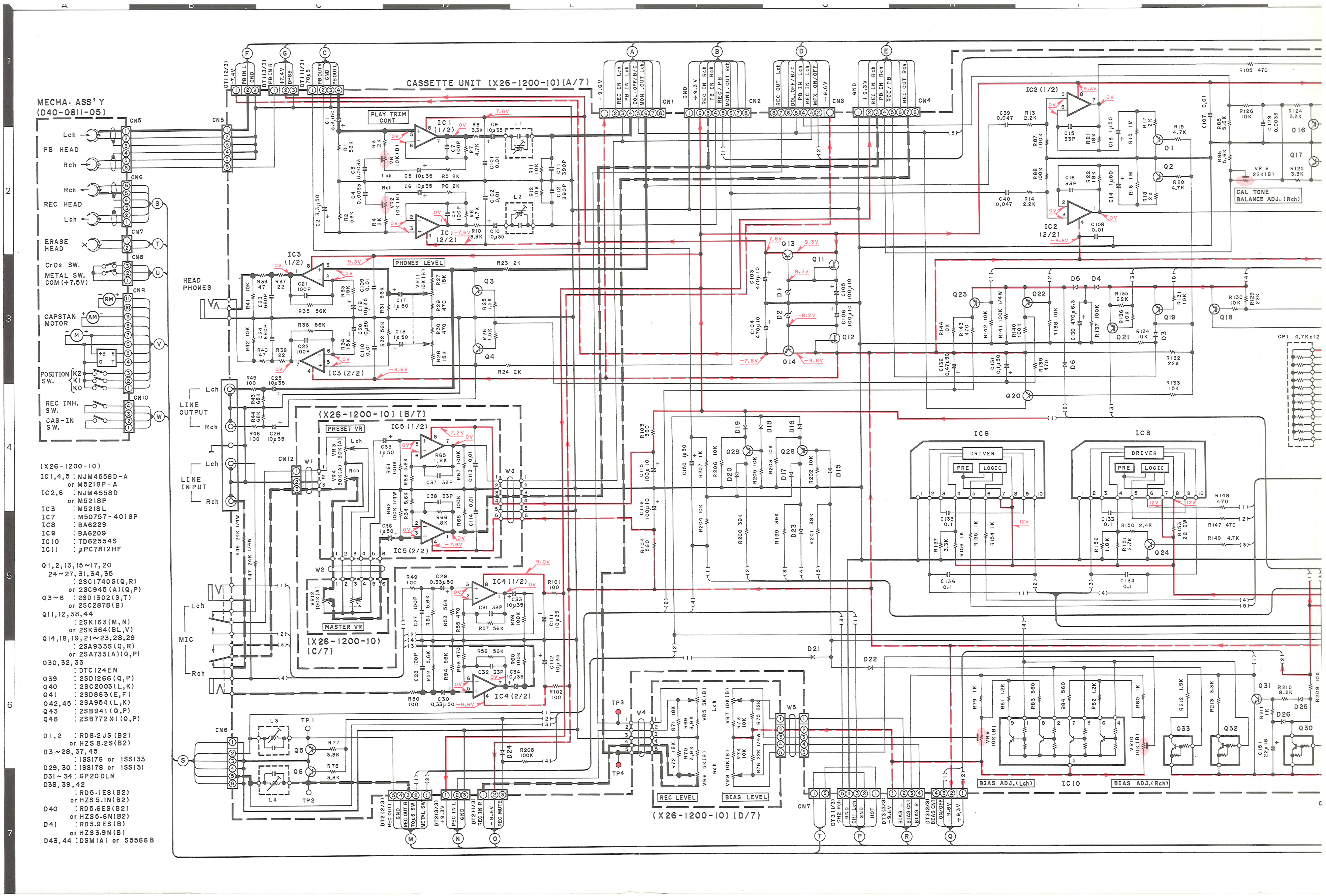
1 ~ 3	0V
4	−7.5V
5 ~ 7	0V
8	7.5V

(X87-1190-03)

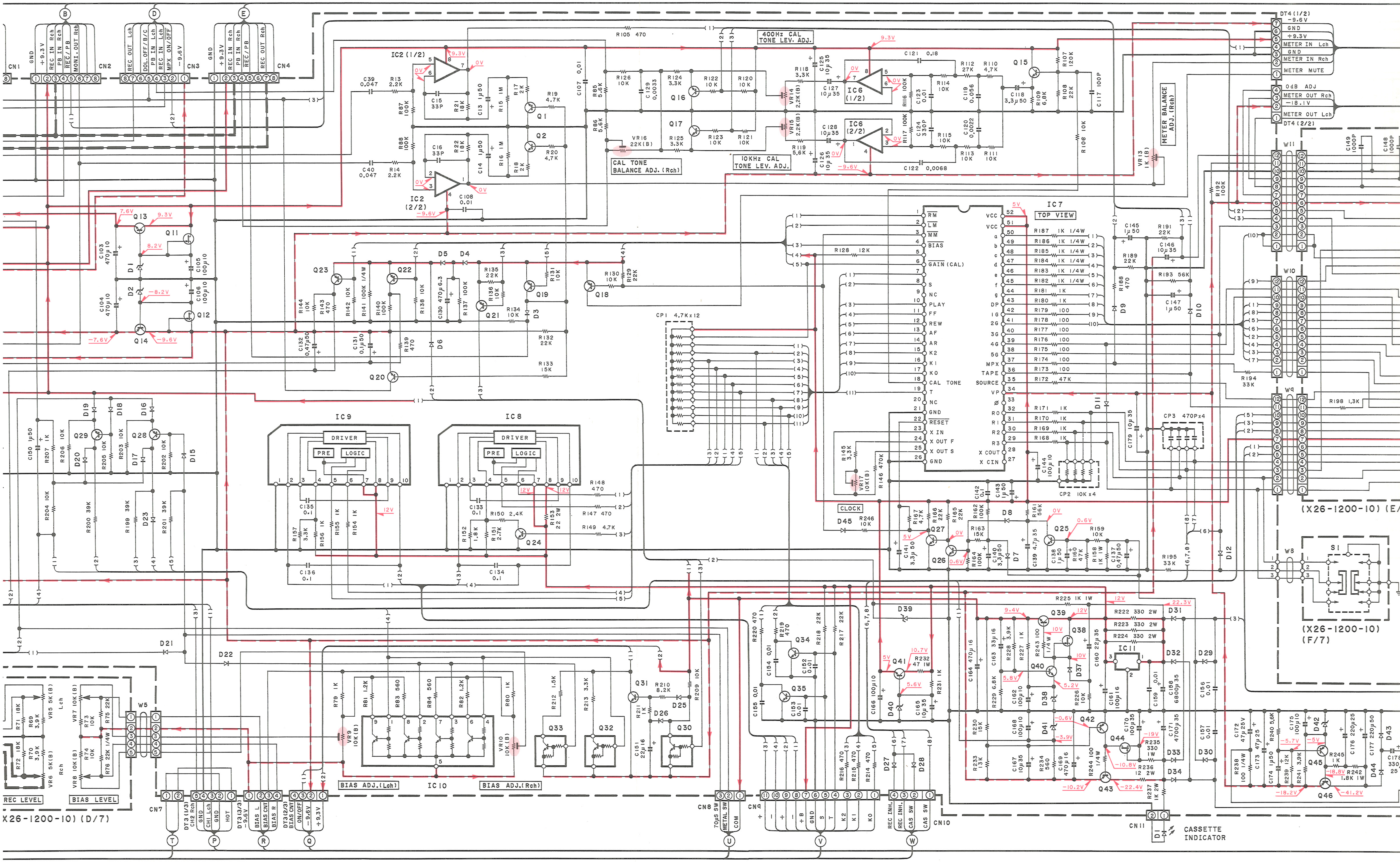
IC1

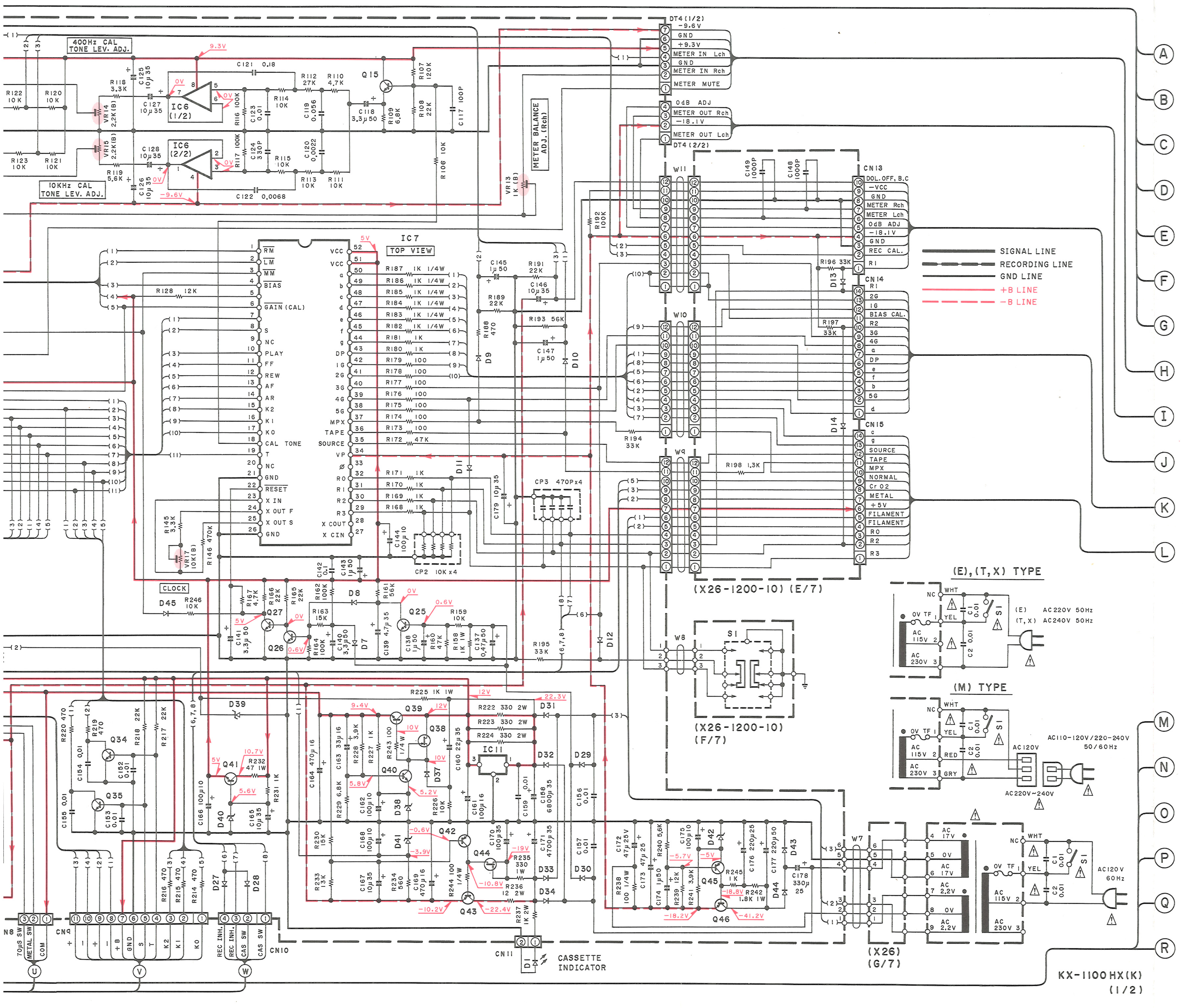
1	−5.8V
2	−9.7V
3	−5.8V
4	−9.1V
5	−9.6V
6	−8.7V
7, 8	−4.2V
9	−10V
10	−8.4V
11, 12	−4.2V
13	−8.7V
14	−9.6V
15	−9.1V
16	−5.8V
17	−9.7V
18	9.3V

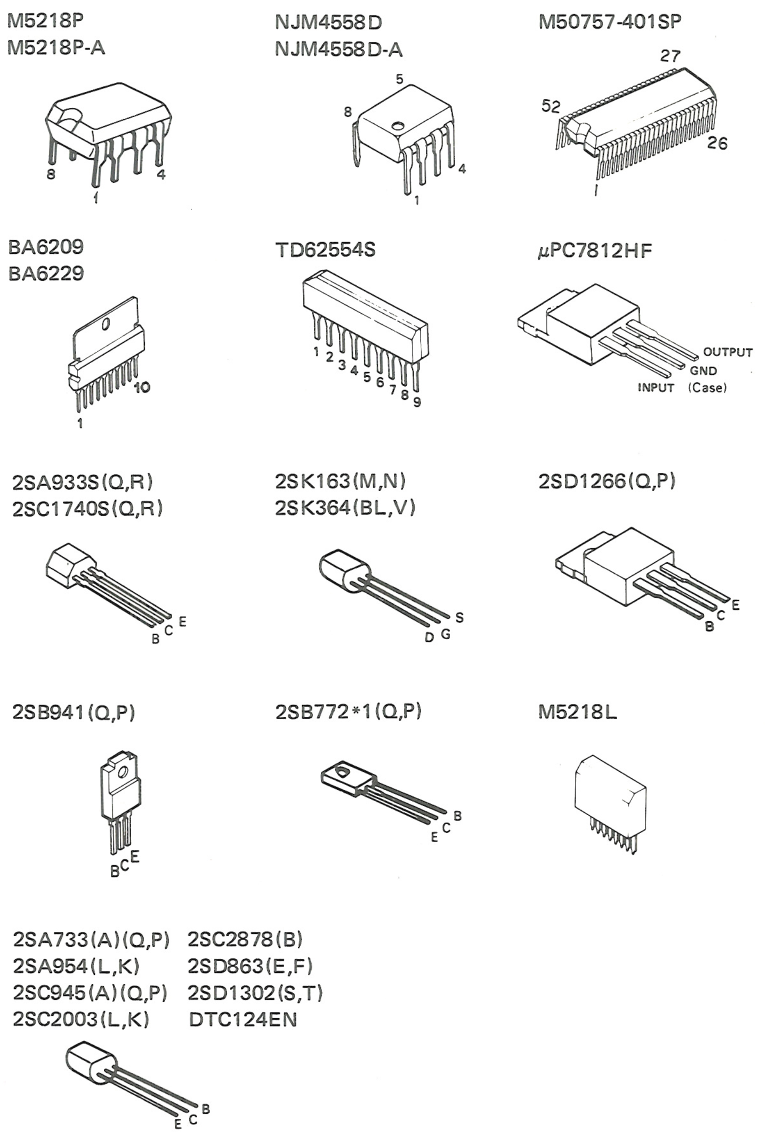
	B	C	E
Q1	−9.7V	M : 4.8V C : −1.2V N : −4.2V	−9.9V
Q2	M : 6.3V C : 0V N : −3.3V	9.3V	M : 5.8V C : −0.6V N : −3.9V


CASSETTE UNIT (X26-1200-10) (A/7)
MECHA. ASS'Y (D40-0811-05)
PB HEAD
REC HEAD
ERASE HEAD
CrO2 SW.
METAL SW.
COM (+7.5V)
CAPSTAN MOTOR
POSITION SW.
REC INH. SW.
CAS-IN SW.
PLAY TRIM CONT
PHONES LEVEL
HEAD PHONES
LINE OUTPUT
LINE INPUT
MIC
(X26-1200-10) (B/7)
PRESET VR
MASTER VR
(X26-1200-10) (C/7)
REC LEVEL
BIAS LEVEL
(X26-1200-10) (D/7)
CAL TONE BALANCE ADJ. (Rch)
BIAS ADJ. (Lch)
BIAS ADJ. (Rch)
IC1 (1/2)
IC1 (2/2)
IC2 (1/2)
IC2 (2/2)
IC3 (1/2)
IC3 (2/2)
IC4 (1/2)
IC4 (2/2)
IC5 (1/2)
IC5 (2/2)
IC8
IC9
IC10
DRIVER
PRE
LOGIC
CN1
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
CN10
CN12
TP1
TP2
TP3
TP4
W1
W2
W3
W4
W5
CP1 4.7K×12

(X26-1200-10)	
IC1,4,5	NJM4558D-A or M5218P-A
IC2,6	NJM4558D or M5218P
IC3	M5218L
IC7	M50757-401SP
IC8	BA6229
IC9	BA6209
IC10	TD62554S
IC11	μPC7812HF
Q1,2,13,15~17,20 24~27,31,34,35	2SC1740S(Q,R) or 2SC945(A)(Q,P)
Q3~6	2SD1302(S,T) or 2SC2878(B)
Q11,12,38,44	2SK163(M,N) or 2SK364(BL,V)
Q14,18,19,21~23,28,29	2SA933S(Q,R) or 2SA733(A)(Q,P)
Q30,32,33	DTC124EN
Q39	2SD1266(Q,P)
Q40	2SC2003(L,K)
Q41	2SD863(E,F)
Q42,45	2SA954(L,K)
Q43	2SB941(Q,P)
Q46	2SB772*1(Q,P)
D1,2	RD8.2JS(B2) or HZS8.2S(B2)
D3~28,37,45	1SS176 or 1SS133
D29,30	1SS178 or 1SS131
D31~34	GP20DLN
D38,39,42	RD5.1ES(B2) or HZS5.1N(B2)
D40	RD5.6ES(B2) or HZS5.6N(B2)
D41	RD3.9ES(B) or HZS3.9N(B)
D43,44	DSM1A1 or S5566B


CN1
GND
+9.3V
REC IN Rch
PB IN Rch
REC/PB
MONI. OUT Rch
CN2
REC OUT Lch
DOL.OFF/B/C
PB IN Lch
REC IN Lch
MPX ON/OFF
-9.6V
CN3
GND
+9.3V
REC IN Rch
PB IN Rch
REC/PB
REC OUT Rch
CN4
IC2 (1/2)
IC2 (2/2)
C39 0.047
R13 2.2K
C40 0.047
R14 2.2K
C15 33P
C16 33P
R21 18K
R22 18K
C13 1μ50
C14 1μ50
R15 1M
R16 1M
R17 2K
R18 2K
R19 4.7K
R20 4.7K
R87 100K
R88 100K
Q1
Q2
C108 0.01
C107 0.01
R85 5.6K
R86 5.6K
R105 470
R126 10K
C129 0.0033
R124 3.3K
R125 3.3K
Q16
Q17
R122 10K
R123 10K
R120 10K
R121 10K
VR16 22K(B)
CAL TONE BALANCE ADJ. (Rch)
400Hz CAL TONE LEV. ADJ.
10KHz CAL TONE LEV. ADJ.
R118 3.3K
R119 5.6K
VR14 2.2K(B)
VR15 2.2K(B)
C125 10μ35
C126 10μ35
C127 10μ35
C128 10μ35
IC6 (1/2)
IC6 (2/2)
R116 100K
R117 100K
C123 0.01
C124 330P
C121 0.18
C122 0.0068
R114 10K
R115 10K
C119 0.056
C120 0.0022
R112 27K
R113 10K
R110 4.7K
R111 10K
Q15
C118 3.3μ50
R109 6.8K
R108 22K
R107 120K
C117 100P
R106 10K
9.3V
-9.6V
0V
7.6V
8.2V
-8.2V
-7.6V
Q13
Q11
Q12
Q14
C103 470μ10
C104 470μ10
C105 100μ10
C106 100μ10
D1
D2
D5
D4
Q23
Q22
Q21
Q20
Q19
Q18
R144 10K
R143 470
R142 10K
R141 100K 1/4W
R140 100K
R138 10K
C130 470μ6.3
R137 100K
R136 10K
R135 22K
R134 10K
R131 10K
R130 10K
R129 22K
R128 12K
R132 22K
R133 15K
R139 470
C132 0.47μ50
C131 0.1μ50
D3
D6
CP1 4.7K×12
IC7
TOP VIEW
RM
LM
MM
BIAS
GAIN (CAL)
S
NC
PLAY
FF
REW
AF
AR
K2
K1
KO
CAL TONE
T
GND
RESET
X IN
X OUT F
X OUT S
VCC
DP
1G
2G
3G
4G
5G
MPX
TAPE
SOURCE
VP
R0
R1
R2
R3
X COUT
X CIN
5V
R187 1K 1/4W
R186 1K 1/4W
R185 1K 1/4W
R184 1K 1/4W
R183 1K 1/4W
R182 1K 1/4W
R181 1K
R180 1K
R179 100
R178 100
R177 100
R176 100
R175 100
R174 100
R173 100
R172 47K
R171 1K
R170 1K
R169 1K
R168 1K
CP2 10K×4
CP3 470P×4
C144 100μ10
C145 1μ50
C146 10μ35
C147 1μ50
R188 470
R189 22K
R191 22K
R193 56K
R194 33K
R192 100K
D9
D10
D11
C179 10μ35
DT4 (1/2)
DT4 (2/2)
-9.6V
GND
+9.3V
METER IN Lch
METER IN Rch
METER MUTE
0dB ADJ
METER OUT Rch
-18.1V
METER OUT Lch
METER BALANCE ADJ. (Rch)
VR13 1K(B)
W11
W10
W9
W8
S1
C149 1000P
C148 1000P
R198 1.3K
(X26-1200-10) (E/
(X26-1200-10) (F/7)
IC9
IC8
DRIVER
PRE
LOGIC
Q29
Q28
D19
D18
D16
D20
D17
D15
C150 1μ50
R207 1K
R206 10K
R205 10K
R203 10K
R202 10K
R204 10K
R200 39K
R199 39K
R201 39K
D23
C135 0.1
C136 0.1
C133 0.1
C134 0.1
R157 3.3K
R156 1K
R155 1K
R154 1K
R152 1.8K
R151 2.7K
R150 2.4K
R153 22 2W
Q24
R148 470
R147 470
R149 4.7K
12V
R145 3.3K
VR17 10K(B)
R146 470K
CLOCK
D45
R246 10K
C141 3.3μ50
R167 4.7K
R166 22K
R165 22K
Q27
Q26
C142 0.1
C143 1μ50
R162 100K
R161 56K
R163 15K
R164 100K
C140 3.3μ50
D8
D7
C139 4.7μ35
Q25
C138 1μ50
R160 4.7K
R158 1K 1W
R159 10K
C137 0.47μ50
R195 33K
D12
0.6V
D21
D22
W5
R71 18K
R69 3.9K
R72 18K
R70 3.9K
VR5 5K(B)
VR6 5K(B)
Lch
Rch
VR7 10K(B)
VR8 10K(B)
R73 10K
R74 10K
R75 22K
R76 22K 1/4W
REC LEVEL
BIAS LEVEL
(X26-1200-10) (D/7)
CN7
DT3 (1/3)
CH2 Rch
GND
CH1 Lch
GND
HOT
DT3 (3/3)
-9.6V
BIAS L
BIAS CNT
BIAS R
DT3 (2/3)
BIAS CNT ON/OFF
-9.6V
+9.3V
T
P
R
Q
R79 1K
R81 1.2K
R83 560
R84 560
R82 1.2K
R80 1K
VR9 10K(B)
VR10 10K(B)
IC10
BIAS ADJ. (Lch)
BIAS ADJ. (Rch)
R212 1.5K
R213 3.3K
Q33
Q32
Q31
Q30
R211 1K
R210 8.2K
R209 10K
D25
D26
C151 22μ16
R220 470
R219 470
R218 22K
R217 22K
Q34
Q35
C154 0.01
C152 0.01
C155 0.01
C153 0.01
R216 470
R215 470
R214 470
CN8
70μS SW
METAL SW
COM
U
CN9
+B
GND
S
T
K2
K1
KO
V
D39
Q41
R232 47 1W
R231 1K
C166 100μ10
D40
C165 10μ35
D27
D28
REC INH.
CAS SW
CAS SW
CN10
W
10.7V
5V
5.6V
R225 1K 1W
R222 330 2W
R223 330 2W
R224 330 2W
12V
22.3V
9.4V
10V
Q39
Q38
Q40
D31
D32
D37
D38
IC11
C164 470μ16
C163 33μ16
R228 3.9K
R227 1K
R243 100 1/4W
C160 22μ35
R229 6.8K
C162 100μ10
5.8V
5.2V
R226 10K
C161 100μ16
C159 0.01
C158 6800μ35
D29
C156 0.01
R230 15K
C168 100μ10
D41
Q42
-0.6V
-3.9V
Q44
C170 100μ35
R235 330 1W
D33
C171 4700μ35
C157 0.01
D30
R233 13K
C167 10μ35
R234 560
C169 470μ16
R244 100 1/4W
-10.8V
R236 12 2W
D34
Q43
-10.2V
-22.4V
-19V
R237 1K 2W
CN11
D1
CASSETTE INDICATOR
R238 100 1/4W
C172 47μ25
C173 47μ25
R240 5.6K
C174 1μ50
R239 12K
R241 3.9K
C175 100μ10
D42
-5.7V
-5V
Q45
R245 1K
-18.8V
R242 1.8K 1W
C176 220μ25
C177 220μ50
D43
D44
Q46
-18.2V
-41.2V


400Hz CAL TONE LEV. ADJ.
10KHz CAL TONE LEV. ADJ.
IC6 (1/2)
IC6 (2/2)
IC7
TOP VIEW
METER BALANCE ADJ. (Rch)
DT4 (1/2)
DT4 (2/2)
-9.6V
GND
+9.3V
METER IN Lch
METER IN Rch
METER MUTE
0dB ADJ
METER OUT Rch
-18.1V
METER OUT Lch
W11
W10
W9
W8
W7
CN13
CN14
CN15
CN9
CN10
CN11
CN8
CP2 10K x4
CP3 470P x4
CLOCK
SIGNAL LINE
RECORDING LINE
GND LINE
+B LINE
-B LINE
(X26-1200-10) (E/7)
(X26-1200-10) (F/7)
(X26) (G/7)
(E), (T, X) TYPE
(E) AC220V 50Hz
(T, X) AC240V 50Hz
(M) TYPE
AC110-120V/220-240V 50/60Hz
AC120V
AC220V-240V
AC120V 60Hz
CASSETTE INDICATOR
KX-1100HX (K) (1/2)
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
U
V
W

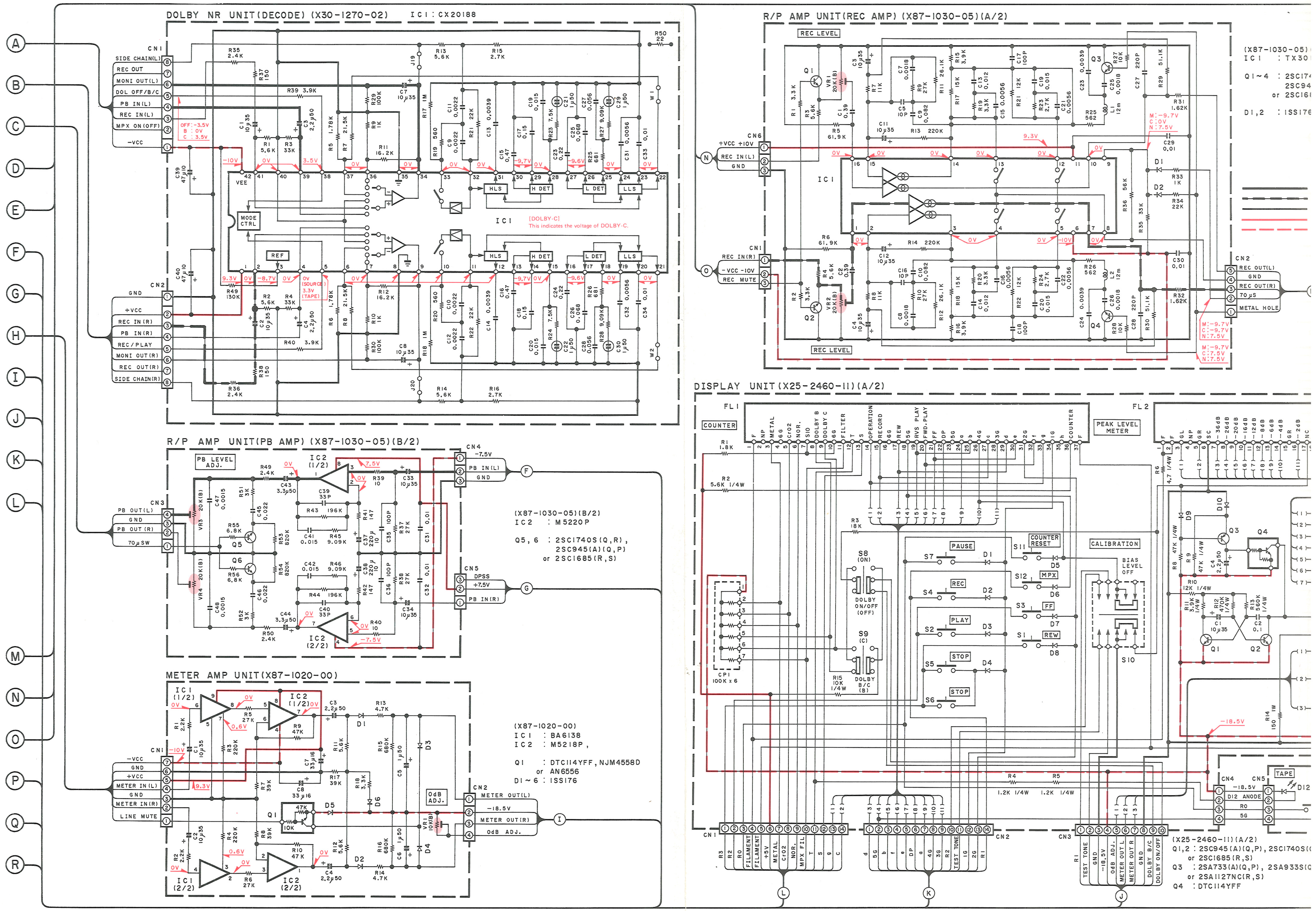

M5218P
M5218P-A
NJM4558D
NJM4558D-A
M50757-401SP
BA6209
BA6229
TD62554S
μPC7812HF
OUTPUT
GND
INPUT (Case)
2SA933S(Q,R)
2SC1740S(Q,R)
2SK163(M,N)
2SK364(BL,V)
2SD1266(Q,P)
2SB941(Q,P)
2SB772*1(Q,P)
M5218L
2SA733(A)(Q,P)
2SA954(L,K)
2SC945(A)(Q,P)
2SC2003(L,K)
2SC2878(B)
2SD863(E,F)
2SD1302(S,T)
DTC124EN
B C E
D G S

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter with a cassette loaded at playback mode. Values may vary slightly due to variations between individual instruments or/and units. Bias circuit DC voltages are as measured while in the record mode.
- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Une cassette étant insérée en mode du lecture. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels. Les tensions c.c. du circuit de polarité doivent être mesurées. l'appareil étant en mode d'enregistrement.
- Die angegeben Gleichspannungswerte wurden bei eingesetzter Cassette in der Wiedergage mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig. Die angegeben Gleichspannungswerte der Vormagnetisierungsschaltung wurden in der Aufnahme-Betriebsart gemessen.

KX-1100HX

KENWOOD


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
CN1
SIDE CHAIN(L)
REC OUT
MONI OUT(L)
DOL OFF/B/C
PB IN(L)
REC IN(L)
MPX ON(OFF)
-VCC
OFF: -3.5V
B : 0V
C : 3.5V
CN2
GND
+VCC
REC IN(R)
PB IN(R)
REC/PLAY
MONI OUT(R)
REC OUT(R)
SIDE CHAIN(R)
VEE
MODE CTRL
REF
HLS
H DET
L DET
LLS
IC1
[DOLBY-C]
This indicates the voltage of DOLBY-C.
CN3
PB OUT(L)
GND
PB OUT(R)
70μSW
PB LEVEL ADJ.
CN4
PB IN(L)
CN5
DPSS
PB IN(R)
CN6
+VCC +10V
REC IN(L)
REC IN(R)
-VCC -10V
REC MUTE
REC LEVEL
REC OUT(L)
REC OUT(R)
70μS
METAL HOLE
-VCC
+VCC
METER IN(L)
METER IN(R)
LINE MUTE
METER OUT(L)
-18.5V
METER OUT(R)
0dB ADJ.
FL1
FL2
COUNTER
PEAK LEVEL METER
PAUSE
COUNTER RESET
MPX
REC
FF
PLAY
REW
STOP
CALIBRATION
BIAS LEVEL OFF
DOLBY ON/OFF (OFF)
DOLBY B/C (B)
S10
TAPE
D12 ANODE
R0
5G
TEST TONE
GND
0dB ADJ.
METER OUT L
METER OUT R
DOLBY B/C
DOLBY ON/OFF

DOLBY NR UNIT(DECODE) (X30-1270-02)

IC1 : CX20188

R/P AMP UNIT(PB AMP) (X87-1030-05)(B/2)

(X87-1030-05)(B/2)
IC2 : M5220P

Q5, 6 : 2SC1740S(Q,R),
2SC945(A)(Q,P)
or 2SC1685(R,S)

METER AMP UNIT(X87-1020-00)

(X87-1020-00)
IC1 : BA6138
IC2 : M5218P,

Q1 : DTC114YFF, NJM4558D
or AN6556
D1~6 : 1SS176

R/P AMP UNIT(REC AMP) (X87-1030-05)(A/2)

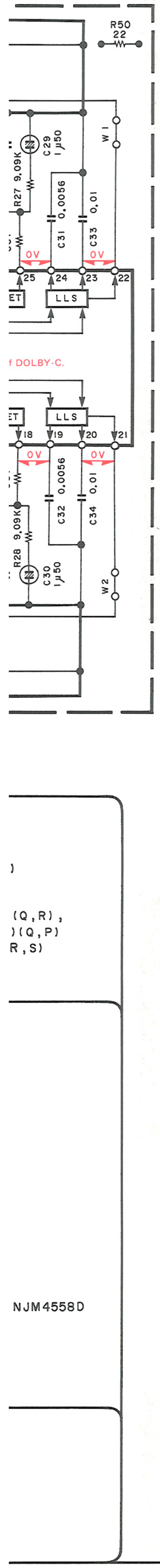
(X87-1030-05)
IC1 : TX30

Q1~4 : 2SC174
2SC94
or 2SC16

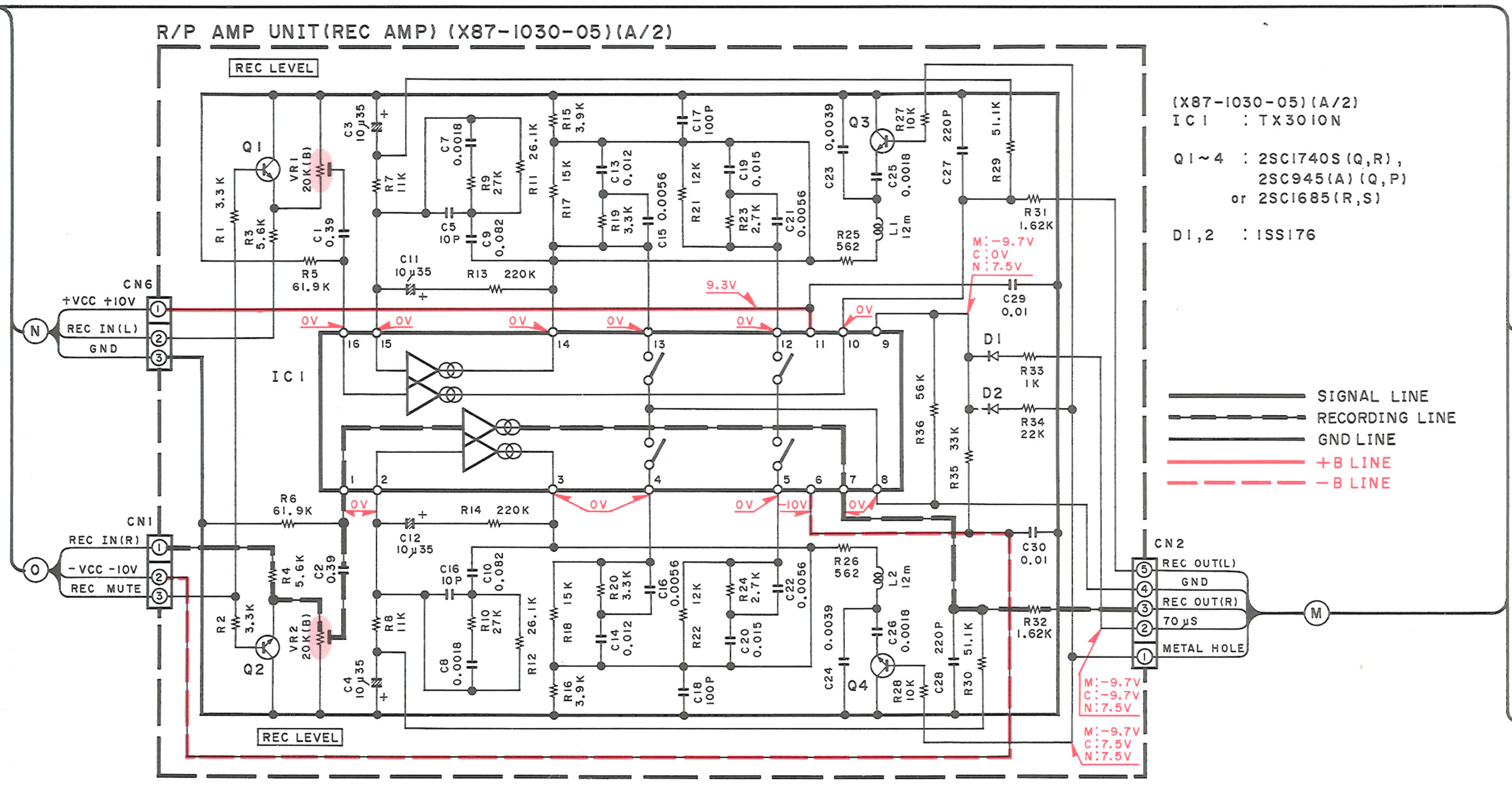
D1,2 : 1SS176

DISPLAY UNIT(X25-2460-11)(A/2)

(X25-2460-11)(A/2)
Q1,2 : 2SC945(A)(Q,P), 2SC1740S(
or 2SC1685(R,S)
Q3 : 2SA733(A)(Q,P), 2SA933S(
or 2SA1127NC(R,S)
Q4 : DTC114YFF


R50 22
R27 9.09K
C29 1μ50
C31 0.0056
C33 0.01
W1
LLS
DOLBY-C
R28 9.09K
C30 1μ50
C32 0.0056
C34 0.01
W2
(Q,R),
(Q,P)
R,S)
NJM4558D

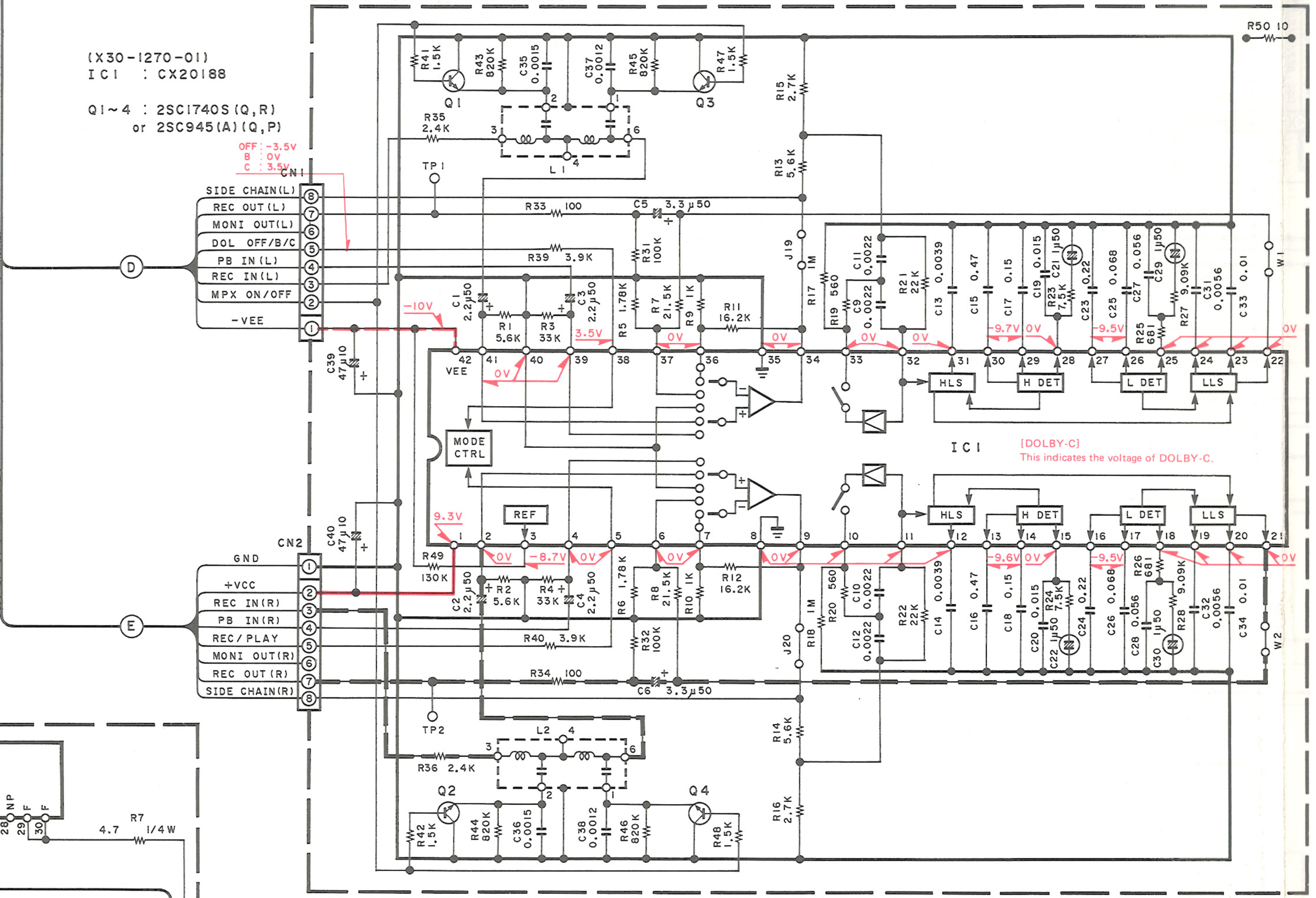
R/P AMP UNIT(REC AMP)(X87-1030-05)(A/2)


REC LEVEL
Q1
VR1 20K(B)
CN6
+VCC +10V
REC IN(L)
GND
N
IC1
CN1
REC IN(R)
-VCC -10V
REC MUTE
O
Q2
VR2 20K(B)
Q3
Q4
D1
D2
CN2
REC OUT(L)
GND
REC OUT(R)
70μS
METAL HOLE
M
M:-9.7V
C:-9.7V
N:7.5V
SIGNAL LINE
RECORDING LINE
GND LINE
+B LINE
-B LINE

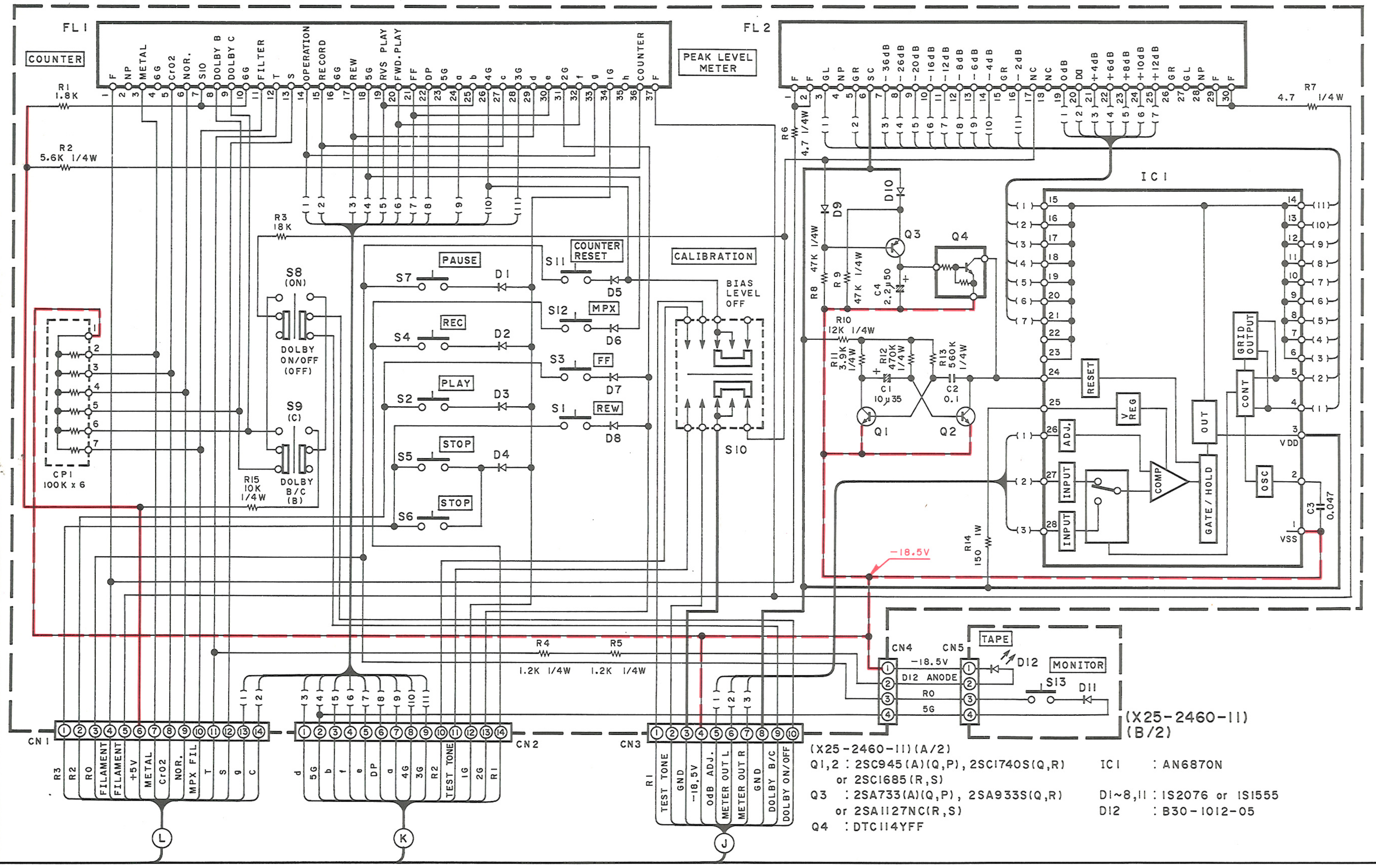
(X87-1030-05)(A/2)
IC1 : TX3010N
Q1~4 : 2SC1740S(Q,R), 2SC945(A)(Q,P) or 2SC1685(R,S)
D1,2 : 1SS176

DOLBY NR UNIT(ENCODE)(X30-1270-01)

(X30-1270-01)
IC1 : CX20188
Q1~4 : 2SC1740S(Q,R) or 2SC945(A)(Q,P)


OFF : -3.5V
B : 0V
C : 3.5V
CN1
SIDE CHAIN(L)
REC OUT(L)
MONI OUT(L)
DOL OFF/B/C
PB IN(L)
REC IN(L)
MPX ON/OFF
-VEE
D
CN2
GND
+VCC
REC IN(R)
PB IN(R)
REC/PLAY
MONI OUT(R)
REC OUT(R)
SIDE CHAIN(R)
E
IC1
MODE CTRL
REF
HLS
H DET
L DET
LLS
[DOLBY-C]
This indicates the voltage of DOLBY-C.
Q1
Q2
Q3
Q4
L1
L2
TP1
TP2
J19
J20

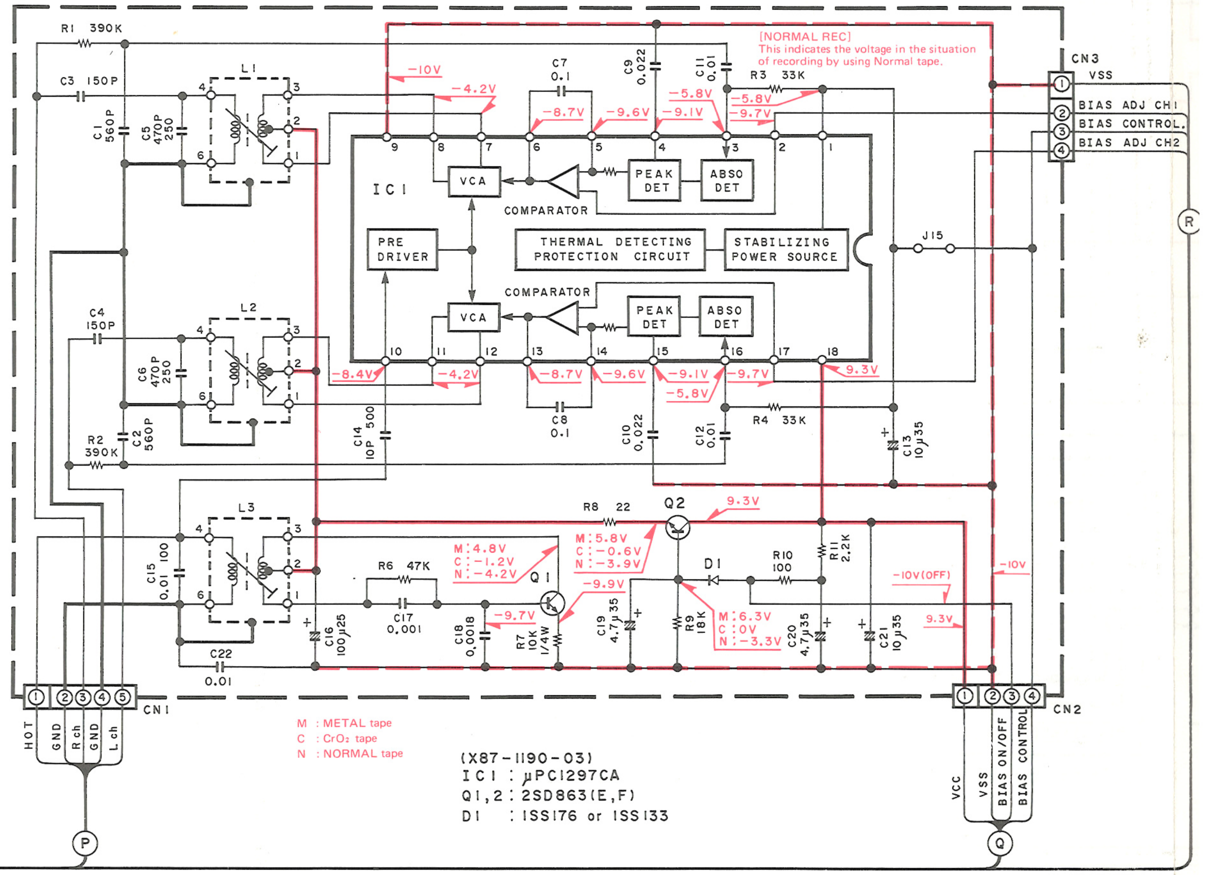
DISPLAY UNIT(X25-2460-11)(A/2)


FL1
FL2
COUNTER
PEAK LEVEL METER
S8 (ON)
DOLBY ON/OFF (OFF)
S9 (C)
DOLBY B/C (B)
CP1 100K x 6
PAUSE
REC
PLAY
STOP
S7
S4
S2
S5
S6
S11
S12
S3
S1
COUNTER RESET
MPX
FF
REW
CALIBRATION
BIAS LEVEL OFF
S10
IC1
RESET
V REG
OUT
CONT
GRID OUTPUT
ADJ.
INPUT
COMP
GATE/HOLD
OSC
VDD
VSS
Q1
Q2
Q3
Q4
D9
D10
-18.5V
CN4
CN5
TAPE
D12
MONITOR
S13
D11
-18.5V
D12 ANODE
RO
5G
(X25-2460-11)(B/2)
CN1
CN2
CN3
L
K
J
R3
R2
RO
FILAMENT
FILAMENT
+5V
METAL
CrO2
NOR.
MPX FIL
TEST TONE
METER OUT L
METER OUT R
DOLBY B/C
DOLBY ON/OFF

(X25-2460-11)(A/2)
Q1,2 : 2SC945(A)(Q,P), 2SC1740S(Q,R) or 2SC1685(R,S)
Q3 : 2SA733(A)(Q,P), 2SA933S(Q,R) or 2SA1127NC(R,S)
Q4 : DTC114YFF

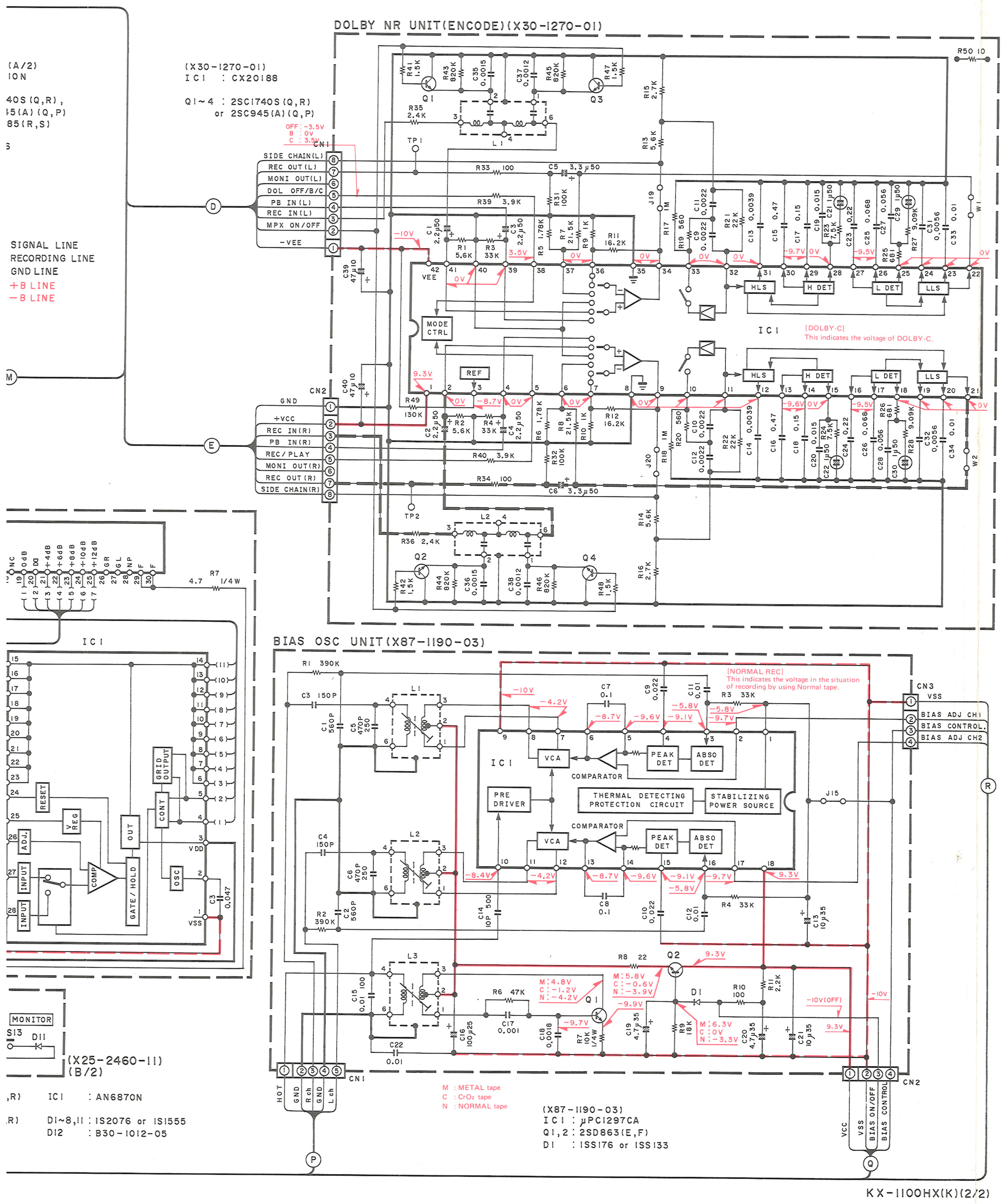
IC1 : AN6870N
D1~8,11 : 1S2076 or 1S1555
D12 : B30-1012-05

BIAS OSC UNIT(X87-1190-03)


[NORMAL REC]
This indicates the voltage in the situation of recording by using Normal tape.
CN3
VSS
BIAS ADJ CH1
BIAS CONTROL
BIAS ADJ CH2
R
L1
L2
L3
IC1
VCA
COMPARATOR
PEAK DET
ABSO DET
PRE DRIVER
THERMAL DETECTING PROTECTION CIRCUIT
STABILIZING POWER SOURCE
J15
Q1
Q2
D1
M:4.8V
C:-1.2V
N:-4.2V
M:5.8V
C:-0.6V
N:-3.9V
M:6.3V
C:0V
N:-3.3V
-10V(OFF)
CN1
HOT
GND
R ch
GND
L ch
P
CN2
VCC
VSS
BIAS ON/OFF
BIAS CONTROL
Q

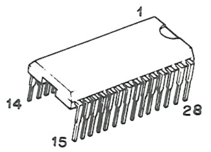
M : METAL tape
C : CrO2 tape
N : NORMAL tape

(X87-1190-03)
IC1 : μPC1297CA
Q1,2 : 2SD863(E,F)
D1 : 1SS176 or 1SS133

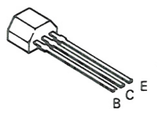

DOLBY NR UNIT(ENCODE)(X30-1270-01)
(X30-1270-01)
IC1 : CX20188
Q1~4 : 2SC1740S(Q,R) or 2SC945(A)(Q,P)
OFF : -3.5V
B : 0V
C : 3.5V
CN1
SIDE CHAIN(L)
REC OUT(L)
MONI OUT(L)
DOL OFF/B/C
PB IN(L)
REC IN(L)
MPX ON/OFF
-VEE
CN2
GND
+VCC
REC IN(R)
PB IN(R)
REC/PLAY
MONI OUT(R)
REC OUT(R)
SIDE CHAIN(R)
SIGNAL LINE
RECORDING LINE
GND LINE
+B LINE
-B LINE
MODE CTRL
REF
HLS
H DET
L DET
LLS
VEE
IC1
[DOLBY-C]
This indicates the voltage of DOLBY-C.
TP1
TP2
L1
L2
R50 10
W1
W2
J19
J20
BIAS OSC UNIT(X87-1190-03)
[NORMAL REC]
This indicates the voltage in the situation of recording by using Normal tape.
IC1
VCA
PEAK DET
ABSO DET
COMPARATOR
PRE DRIVER
THERMAL DETECTING PROTECTION CIRCUIT
STABILIZING POWER SOURCE
L1
L2
L3
J15
CN3
VSS
BIAS ADJ CH1
BIAS CONTROL
BIAS ADJ CH2
CN1
HOT
GND
Rch
GND
Lch
CN2
VCC
VSS
BIAS ON/OFF
BIAS CONTROL
M : METAL tape
C : CrO2 tape
N : NORMAL tape
(X87-1190-03)
IC1 : μPC1297CA
Q1,2 : 2SD863(E,F)
D1 : 1SS176 or 1SS133
IC1
RESET
ADJ
INPUT
INPUT
COMP
V REG
GATE/HOLD
OUT
OSC
CONT
GRID OUTPUT
VDD
VSS
MONITOR
S13
D11
(X25-2460-11)
(B/2)
IC1 : AN6870N
D1~8,11 : 1S2076 or 1S1555
D12 : B30-1012-05
R7 4.7 1/4W
D
E
M
P
Q
R

KX-1100HX(K)(2/2)

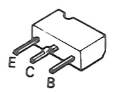
AN6870N



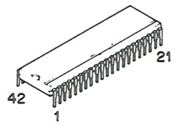
2SA933S(Q,R)
2SC1740S(Q,R)



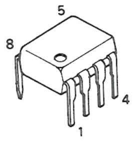
DTC114YFF



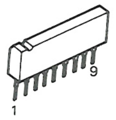
CX20188



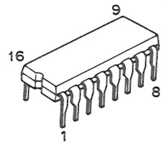
NJM4558D



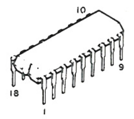
BA6138



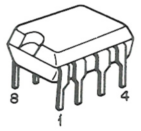
TX3010N



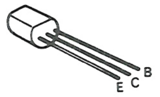
μPC1297CA



AN6556
M5218P
M5220P



2SA733(A)(Q,P)
2SA1127NC(R,S)
2SC945(A)(Q,P)
2SC1685(R,S)
2SD863(E,F)



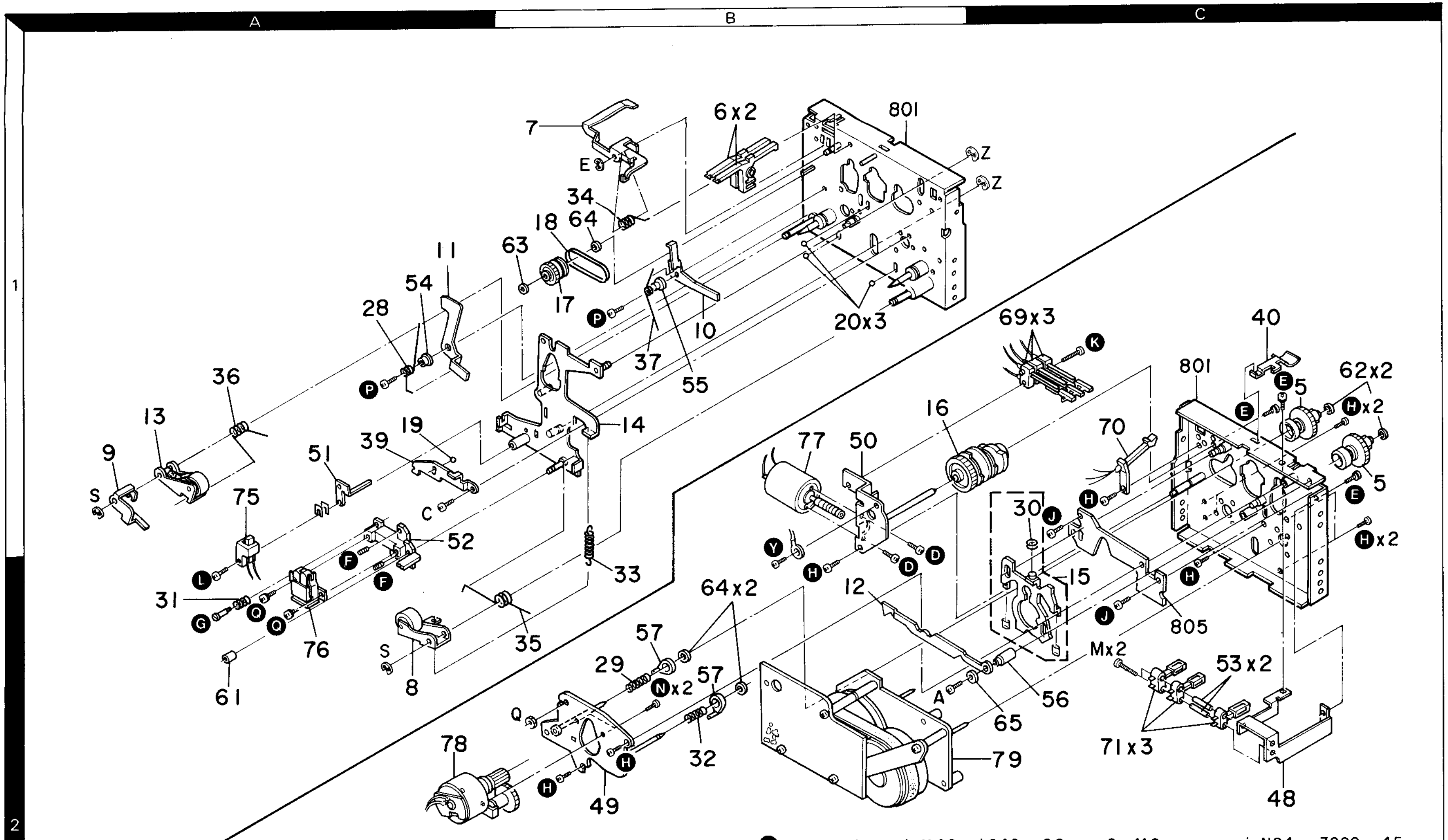
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter with a cassette loaded at playback mode. Values may vary slightly due to variations between individual instruments or/and units. Bias circuit DC voltages are as measured while in the record mode.
- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Une cassette étant insérée en mode du lecture. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels. Les tensions c.c. du circuit de polarité doivent être mesurées. l'appareil étant en mode d'enregistrement.
- Die angegeben Gleichspannungswerte wurden bei eingesetzter Cassette in der Wiedergage mit einem hochohmigen Spannungsmesser gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig. Die angegeben Gleichspannungswerte der Vormagnetisierungsschaltung wurden in der Aufnahme-Betriebsart gemessen.

KX-1100HX

KENWOOD

EXPLODED VIEW (MECHANISM)

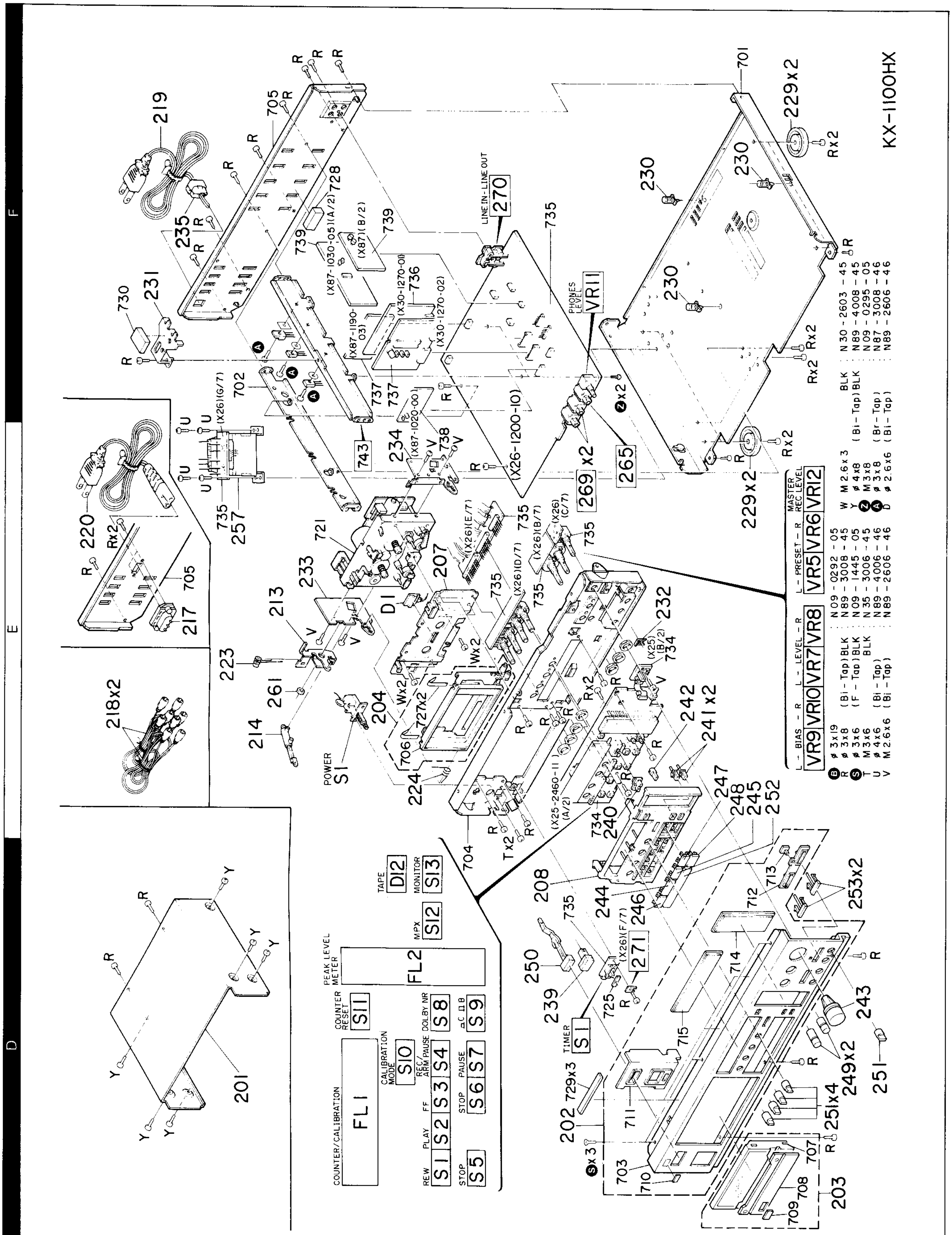

A
B
C
1
2
7
6x2
801
Z
Z
E
34
18
64
63
11
17
54
28
P
P
10
37
55
20x3
36
13
9
S
51
39
19
14
C
75
52
L
F
F
31
G
Q
Q
76
33
61
S
8
35
69x3
K
40
801
62x2
E
E
5
Hx2
5
E
Hx2
16
77
50
70
H
30
J
Y
H
D
D
15
H
J
805
12
64x2
57
29
Nx2
57
Q
32
78
H
H
49
A
65
56
79
Mx2
53x2
71x3
48

A	Ø2.6x12	: N30-2612-46	🅙	M2.5x4	: N09-1240-08	S	M2	: N24-3020-45
E	M2.5	: N24-3025-45	🅚	M2.5x20	: N09-1230-08	🅨	M2.5x6	: N09-1228-08
C	M3x4	: N84-3004-46	🅛	M2x10	: N09-2606-08	Z	M3	: N24-3030-45
🅓	M2x3	: N09-1241-08	M	M2x30	: N30-2030-46			
🅔	M2x5	: N09-1593-08	🅝	M2.6x3	: N09-1232-08			
🅕	M2x4	: N09-1594-08	🅟	M2.5x10	: N09-1229-08			
🅖		: N09-1596-08	🅠	M2x4	: N09-1233-08			
🅗	M2.5x6	: N09-1228-08	Q	M2.0	: N10-2020-46			

KX-1100HX

Parts with the exploded numbers larger than 700 are not supplied.

EXPLODED VIEW (UNIT)


KX-1100HX
701
229x2
Rx2
230
230
230
R
Rx2
Rx2
229x2
Rx2
R
735
LINE IN - LINE OUT
270
PHONES LEVEL
VR11
Zx2
265
269 x2
(X26-1200-10)
R
R R R
705
R
R
R
728
(X87-1030-05)(A/2)
739
(X87)(B/2)
739
(X30-1270-01)
736
(X87-1190-03)
(X30-1270-02)
737
737
(X87-1020-00)
738
R
V
V
234
743
702
A
A
A
219
235
R
R
231
730
R
U U (X26)(G/7)
U U
735
257
220
Rx2
R
705
217
218x2
201
R
R
Y
Y
Y
Y
Y
Y
721
233
213
V
V
223
261
214
207
D1
735
(X26)(E/7)
(X26)(B/7)
(X26)(C/7)
(X26)(D/7)
735
735
735
Wx2
Wx2
727x2
204
POWER
S1
706
224
232
(X25)(B/2)
734
V
Rx2
R
R
R
242
241x2
R
(X25-2460-11)(A/2)
734
240
247
248
245
252
704
R
Tx2
R
208
244
246
735
(X26)(F/7)
271
250
239
725
R
TIMER
S1
713
712
253x2
714
715
R
243
249x2
251
251x4
R
711
729x3
202
Sx3
703
710
707
708
709
203
TAPE
D12
MONITOR
S13
MPX
S12
PEAK LEVEL METER
FL2
COUNTER RESET
S11
DOLBY NR
S8
ΔC ΠB
S9
CALIBRATION MODE
S10
REC/ARM
PAUSE
S4
PAUSE
S7
COUNTER/CALIBRATION
FL1
REW
S1
PLAY
S2
FF
S3
STOP
S5
STOP
S6
L - BIAS - R
VR9
VR10
L - LEVEL - R
VR7
VR8
L - PRESET - R
VR5
VR6
MASTER REC LEVEL
VR12
D
E
F
1
2

Ⓑ	ø 3x19		N09-0292-05
R	ø 3x8	(Bi-Tap)BLK	N89-3008-45
Ⓢ	ø 3x6	(F-Tap)BLK	N09-1445-05
T	M 3x6	BLK	N35-3006-45
U	ø 4x6	(Bi-Tap)	N89-4006-46
V	M 2.6x6	(Bi-Tap)	N89-2606-46
W	M 2.6x3	BLK	N30-2603-45
Y	ø 4x8	(Bi-Tap)BLK	N89-4008-45
Ⓩ	M 3x8		N09-0295-05
Ⓐ	ø 3x8	(Br-Tap)	N87-3008-46
D	ø 2.6x6	(Bi-Tap)	N89-2606-46

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
KX-1100HX						
201	1D		A01-1598-02	METALLIC CABINET		
202	2D	*	A20-5524-03	PANEL ASSY		
203	1E		A53-1025-03	CASSETTE LID ASSY		
204	1F	*	A53-0629-33	CASSETTE HOLDER ASSY		
207	1E	*	B03-2441-03	DRESSING PLATE ASSY		
208	2D		B07-1411-02	ESCUTCHEON (LVL MTR,DISP)		
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-03	WARRANTY CARD	T	
-		*	B50-8882-00	INSTRUCTION MANUAL (ENGLISH)		
-		*	B50-8883-00	INSTRUCTION MANUAL (FRENCH)	MEX	
-		*	B50-8884-00	INSTRUCTION MANUAL (G,D,I)	E	
-		*	B50-9045-00	INSTRUCTION MANUAL (SPANISH)	M	
D1	1E		B30-0740-05	LED(SLF-201C)		
⚠ C1			C91-0023-05	CERAMIC 0.01UF AC250V	M	
⚠ C1			C91-0647-05	CERAMIC 0.01UF P	KTEX	
213	1E		D10-1764-04	LEVER		
214	1E		D39-0172-05	DAMPER ASSY		
⚠ 217	1E		E03-0102-25	AC INLET	M	
218	1E		E30-0505-05	AUDIO CORD		
⚠ 219	1F		E30-0459-05	AC POWER CORD	E	
⚠ 219	1F		E30-0780-05	AC POWER CORD	K	
⚠ 219	1F		E30-1341-05	AC POWER CORD	X	
⚠ 219	1F		E30-1416-05	AC POWER CORD	T	
⚠ 220	1E		E30-1305-15	AC POWER CORD (INLET)	M	
223	1E		G01-1741-04	TORSION COIL SPRING(LEVER)		
224	1F		G01-1742-04	TORSION COIL SPRING		
-		*	H01-7848-04	ITEM CARTON CASE		
-			H10-3588-12	POLYSTYRENE FOAMED FIXTURE		
-			H10-3589-12	POLYSTYRENE FOAMED FIXTURE		
-			H20-0417-14	PROTECTION COVER(460X370X360)	M	
-			H25-0224-04	PROTECTION BAG (800X400)	KTEX	
-			H25-0232-04	PROTECTION BAG (235X350)		
229	2E,2F		J02-0190-15	FOOT		
230	2F		J19-2536-05	UNIT HOLDER		
231	1F		J19-2572-04	UNIT HOLDER		
232	2E		J21-3326-05	JACK MOUNTING HARDWARE		
233	1E		J21-5093-03	MOUNTING HARDWARE ASSY (L)		
234	1E		J21-5094-03	MOUNTING HARDWARE ASSY (R)		
⚠ 235	1F		J42-0083-05	POWER CORD BUSHING	KTEX	
-			J61-0307-05	WIRE BAND		
239	2D		K27-1082-04	KNOB (BUTTON) POWER		
240	2D		K27-1594-04	KNOB (LEVER) CALIBN MODE		
241	2E		K27-1524-04	KNOB (BUTTON) DOLBY		
242	2E		K27-1525-04	KNOB (BUTTON) COUNTER RESET		
243	2D		K29-1822-14	KNOB MASTER REC LVL		
244	2D		K29-1863-14	KNOB (BUTTON) PLAY		
245	2D		K29-1865-14	KNOB (BUTTON) FF		

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Desti-nation 仕向	Re-marks 備考
246	2D		K29-1866-14	KNOB (BUTTON) REW		
247	2E		K29-1890-04	KNOB (BUTTON) REC		
248	2E		K29-1891-14	KNOB (BUTTON) PAUSE		
249	2D		K29-2000-14	KNOB (PRESET)		
250	2D		K29-2200-04	KNOB (BUTTON) EJECT		
251	2D		K29-2201-04	KNOB BIAS,PHONE,LVL		
252	2E		K29-2202-14	KNOB (BUTTON) STOP		
253	2D		K29-2203-04	KNOB (BUTTON) MPX,MONITOR		
⚠ 257	1E		L01-4834-05	POWER TRANSFORMER		
261	1E		N19-0880-04	FLAT WASHER (LEVER)		
S	2D		N09-1445-05	SET SCREW (M3X8)		
⚠ S1	1E		S40-1066-05	PUSH SWITCH (POWER TYPE)		
75	1A	*	T32-0313-05	ERASE HEAD		
76	2A		T34-0314-05	RECORD/PLAYBACK HEAD		
DISPLAY UNIT (X25-2460-11)						
D12	1D		B30-1012-05	LED(SLP-981C-50) TAPE		
C1			CE04KW1V100M	ELECTRO 10UF 35WV		
C2			CF92FV1H104J	MF 0.10UF J		
C3			CF92FV1H473J	MF 0.047UF J		
C4			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
CP1			R90-0426-05	MULTI-COMP 100KX6 J 1/6W		
R14			RS14KB3A151J	FL-PROOF RS 150 J 1W		
S1 -7	1D		S40-1064-05	PUSH SWITCH (OPERATION KEY)		
S8 ,9	1D		S40-2330-05	PUSH SWITCH (DOLBY NR)		
S10	1D		S31-2097-05	SLIDE SWITCH (CALIBN MODE)		
S11 -13	1D		S40-1064-05	PUSH SWITCH(COUNT,MPX,MONITOR)		
D1 -8			1S1555	DIODE		
D1 -8			1S2076	DIODE		
D11			1S1555	DIODE		
D11			1S2076	DIODE		
FL1	1D		6-BT-33ZK	FLUORESCENT INDICATOR TUBE		
FL2	1D		BG-251ZK	FLUORESCENT INDICATOR TUBE		
IC1			AN6870N	IC(18PT LED LEVEL METER DR X2)		
Q1 ,2			2SC1685(R,S)	TRANSISTOR		
Q1 ,2			2SC1740S(Q,R)	TRANSISTOR		
Q1 ,2			2SC945(A)(Q,P)	TRANSISTOR		
Q3			2SA1127NC(R,S)	TRANSISTOR		
Q3			2SA733(A)(Q,P)	TRANSISTOR		
Q3			2SA933S(Q,R)	TRANSISTOR		
Q4			DTC114YFF	DIGITAL TRANSISTOR		
CASSETTE UNIT (X26-1200-10)						
C1 ,2			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C3 ,4			CF92FV1H332J	MF 3300PF J		
C5 ,6			CE04KW1V100M	ELECTRO 10UF 35WV		
C7 ,8			CQ09FS1H101J	POLYSTY 100PF J		
C9 ,10			CE04KW1V100M	ELECTRO 10UF 35WV		
C11 ,12			CQ09FS1H391J	POLYSTY 390PF J		
C13 ,14			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C15 ,16			CC45FSL1H330J	CERAMIC 33PF J		
C17 ,18			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C19 ,20			CE04KW1V100M	ELECTRO 10UF 35WV		

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C21 ,22			CC45FSL1H101J	CERAMIC 100PF J		
C23 ,24			CK45FB1H681K	CERAMIC 680PF K		
C25 ,26			CE04KW1V100M	ELECTRO 10UF 35WV		
C27 ,28			CC45FSL1H101J	CERAMIC 100PF J		
C29 ,30			CE04KW1HR33M	ELECTRO 0. 33UF 50WV		
C31 ,32			CC45FSL1H330J	CERAMIC 33PF J		
C33 ,34			CE04KW1V100M	ELECTRO 10UF 35WV		
C35 ,36			CE04KW1H010M	ELECTRO 1. 0UF 50WV		
C37 ,38			CC45FSL1H330J	CERAMIC 33PF J		
C39 ,40			CF92FV1H473J	MF 0. 047UF J		
C101,102			CK45FF1H103Z	CERAMIC 0. 010UF Z		
C103,104			CE04KW1A471M	ELECTRO 470UF 10WV		
C105,106			CE04KW1A101M	ELECTRO 100UF 10WV		
C107-110			CK45FF1H103Z	CERAMIC 0. 010UF Z		
C111,112			CE04KW1V100M	ELECTRO 10UF 35WV		
C113,114			CK45FF1H103Z	CERAMIC 0. 010UF Z		
C115,116			CE04KW1A101M	ELECTRO 100UF 10WV		
C117			CC45FSL1H101J	CERAMIC 100PF J		
C118			CE04KW1H3R3M	ELECTRO 3. 3UF 50WV		
C119			CF92FV1H563J	MF 0. 056UF J		
C120			CF92FV1H222J	MF 2200PF J		
C121			CF92FV1H184J	MF 0. 18UF J		
C122			CF92FV1H682J	MF 6800PF J		
C123			CF92FV1H103J	MF 0. 010UF J		
C124			CC45FSL1H331J	CERAMIC 330PF J		
C125-128			CE04KW1V100M	ELECTRO 10UF 35WV		
C129			CF92FV1H332J	MF 3300PF J		
C130			CE04KW0J471M	ELECTRO 470UF 6. 3WV		
C131			CE04KW1H0R1M	ELECTRO 0. 1UF 50WV		
C132			CE04KW1HR47M	ELECTRO 0. 47UF 50WV		
C133-136			C91-0700-05	CERAMIC 0. 1UF J		
C137			CE04KW1HR47M	ELECTRO 0. 47UF 50WV		
C138			CE04KW1H010M	ELECTRO 1. 0UF 50WV		
C139			CE04KW1V4R7M	ELECTRO 4. 7UF 35WV		
C140,141			CE04KW1H3R3M	ELECTRO 3. 3UF 50WV		
C142			C91-0700-05	CERAMIC 0. 1UF J		
C143			CE04KW1H010M	ELECTRO 1. 0UF 50WV		
C144			CE04KW1A101M	ELECTRO 100UF 10WV		
C145			CE04KW1H010M	ELECTRO 1. 0UF 50WV		
C146			CE04KW1V100M	ELECTRO 10UF 35WV		
C147			CE04KW1H010M	ELECTRO 1. 0UF 50WV		
C148,149			CK45FB1H102K	CERAMIC 1000PF K		
C150			CE04KW1H010M	ELECTRO 1. 0UF 50WV		
C151			CE04KW1C220M	ELECTRO 22UF 16WV		
C152-157			CK45FF1H103Z	CERAMIC 0. 010UF Z		
C158			C90-1580-05	ELECTRO 6800UF 35WV		
C159			CK45FF1H103Z	CERAMIC 0. 010UF Z		
C160			CE04KW1V220M	ELECTRO 22UF 35WV		
C161			CE04KW1C101M	ELECTRO 100UF 16WV		
C162			CE04KW1A101M	ELECTRO 100UF 10WV		
C163			CE04KW1C330M	ELECTRO 33UF 16WV		
C164			CE04KW1C471M	ELECTRO 470UF 16WV		
C165			CE04KW1V100M	ELECTRO 10UF 35WV		
C166			CE04KW1A101M	ELECTRO 100UF 10WV		
C167			CE04KW1V100M	ELECTRO 10UF 35WV		

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C168			CE04KW1A101M	ELECTRO 100UF 10WV		
C169			CE04KW1C471M	ELECTRO 470UF 16WV		
C170			CE04KW1V101M	ELECTRO 100UF 35WV		
C171			C90-1579-05	ELECTRO 4700UF 35WV		
C172,173			CE04KW1E470M	ELECTRO 47UF 25WV		
C174			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C175			CE04KW1A101M	ELECTRO 100UF 10WV		
C176			CE04KW1E221M	ELECTRO 220UF 25WV		
C177			CE04KW1H221M	ELECTRO 220UF 50WV		
C178			CE04KW1E331M	ELECTRO 330UF 25WV		
C179			CE04KW1V100M	ELECTRO 10UF 35WV		
265	2E		E11-0104-15	PHONE JACK (3P) HEAD PHONE		
269	2E		E11-0151-05	PHONE JACK (2P) MIC		
270	2F		E13-0482-05	PHONO JACK		
271	2D		E23-0149-05	TERMINAL		
L1 -4			L39-0107-05	TRAP COIL		
Z	2F		N09-0295-05	HEXAGON HEAD BOLT(M3X8,+)		
CP1			R90-0452-05	MULTI-COMP 4.7KX12 J 1/4W		
CP2			R90-0233-05	MULTI-COMP 10KX4 J 1/6W		
CP3			R90-0178-05	MULTI-COMP 470PX4		
R153			RS14DB3D220J	FL-PROOF RS 22 J 2W		
R158			RS14DB3A102J	FL-PROOF RS 1.0K J 1W		
R222-224			RS14DB3D331J	FL-PROOF RS 330 J 2W		
R225			RS14DB3A102J	FL-PROOF RS 1.0K J 1W		
R232			RS14DB3A470J	FL-PROOF RS 47 J 1W		
R235			RS14DB3A331J	FL-PROOF RS 330 J 1W		
R236			RS14DB3D120J	FL-PROOF RS 12 J 2W		
R237			RS14DB3D102J	FL-PROOF RS 1.0K J 2W		
R238			R92-0228-05	FUSE RESIST 100 G 1/4W		
R242			RS14DB3A182J	FL-PROOF RS 1.8K J 1W		
R243,244			RD14AB2E101J	FL-PROOF RD 100 J 1/4W		
VR1 ,2			R12-3126-05	TRIMMING POT.(10KB)PLAY TRIM		
VR3 ,4	2E		R01-4032-05	POTENTIOMETER(47KB)BIAS ADJ		
VR5 ,6	2E		R01-2020-05	POTENTIOMETER(50KA)PRESET		
VR7 ,8	2E		R01-3039-05	POTENTIOMETER(5KB)LEVEL 400HZ		
VR9 ,10	2E		R12-3126-05	TRIMMING POT.(50KB)BIAS CUR		
VR11	2F		R10-3023-05	POTENTIOMETER(10KX2)PHONES LVL		
VR12	2E		R10-5020-05	POTENTIOMETER(100KX2)MSTR REC		
VR13			R12-1083-05	TRIMMING POT.(1KB)FL METER,R		
VR14,15			R12-1085-05	TRIMMING POT.(2.2KB)400HZ/10KH		
VR16			R12-3128-05	TRIMMING POT.(22KB)CAL TONE BL		
VR17			R12-3126-05	TRIMMING POT.(2.2KB)CLOCK ADJ		
S1	2D		S31-2062-15	SLIDE SWITCH (TIMER)		
D1 ,2			HZS8.2S(B2)	ZENER DIODE		
D1 ,2			RD8.2JS(B2)	ZENER DIODE		
D3 -28			1SS133	DIODE		
D3 -28			1SS176	DIODE		
D29 ,30			1SS131	DIODE		
D29 ,30			1SS178	DIODE		
D31 -34			GP20DLN	DIODE		
D37			1SS133	DIODE		
D37			1SS176	DIODE		

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D38 ,39			HZS5.1N(B2)	ZENER DIODE		
D38 ,39			RD5.1ES(B2)	ZENER DIODE		
D40			HZS5.6N(B2)	ZENER DIODE		
D40			RD5.6ES(B2)	ZENER DIODE		
D41			HZS3.9N(B)	ZENER DIODE		
D41			RD3.9ES(B)	ZENER DIODE		
D42			HZS5.1N(B2)	ZENER DIODE		
D42			RD5.1ES(B2)	ZENER DIODE		
D43 ,44			DSM1A1	DIODE		
D43 ,44			S5566B	DIODE		
D45			1SS133	DIODE		
D45			1SS176	DIODE		
IC1			M5218P-A	IC(OP AMP X2)		
IC1			NJM4558D-A	IC(OP AMP X2)		
IC2			M5218P	IC(OP AMP X2)		
IC2			NJM4558D	IC(OP AMP X2)		
IC3			M5218L	IC(OP AMP X2)		
IC4 ,5			M5218P-A	IC(OP AMP X2)		
IC4 ,5			NJM4558D-A	IC(OP AMP X2)		
IC6			M5218P	IC(OP AMP X2)		
IC6			NJM4558D	IC(OP AMP X2)		
IC7			M50757-401SP	IC(MICROPROCESSOR)		
IC8			BA6229	IC(MOTOR DRIVER)		
IC9			BA6209	IC(MOTOR DRIVER)		
IC10			TD62554S	IC(4CH TRANSISTOR ARRAY)		
IC11			UPC7812HF	IC(VOLTAGE REGULATOR/ +12V)		
Q1 ,2			2SC1740S(Q,R)	TRANSISTOR		
Q1 ,2			2SC945(A)(Q,P)	TRANSISTOR		
Q3 -6			2SC2878(B)	TRANSISTOR		
Q3 -6			2SD1302(S,T)	TRANSISTOR		
Q11 ,12			2SK163(M,N)	FET		
Q11 ,12			2SK364(BL,V)	FET		
Q13			2SC1740S(Q,R)	TRANSISTOR		
Q13			2SC945(A)(Q,P)	TRANSISTOR		
Q14			2SA733(A)(Q,P)	TRANSISTOR		
Q14			2SA933S(Q,R)	TRANSISTOR		
Q15 -17			2SC1740S(Q,R)	TRANSISTOR		
Q15 -17			2SC945(A)(Q,P)	TRANSISTOR		
Q18 ,19			2SA733(A)(Q,P)	TRANSISTOR		
Q18 ,19			2SA933S(Q,R)	TRANSISTOR		
Q20			2SC1740S(Q,R)	TRANSISTOR		
Q21 -23			2SA733(A)(Q,P)	TRANSISTOR		
Q21 -23			2SA933S(Q,R)	TRANSISTOR		
Q24 -27			2SC1740S(Q,R)	TRANSISTOR		
Q24 -27			2SC945(A)(Q,P)	TRANSISTOR		
Q28 ,29			2SA733(A)(Q,P)	TRANSISTOR		
Q28 ,29			2SA933S(Q,R)	TRANSISTOR		
Q30			DTC124EN	DIGITAL TRANSISTOR		
Q31			2SC1740S(Q,R)	TRANSISTOR		
Q31			2SC945(A)(Q,P)	TRANSISTOR		
Q32 ,33			DTC124EN	DIGITAL TRANSISTOR		
Q34 ,35			2SC1740S(Q,R)	TRANSISTOR		
Q34 ,35			2SC945(A)(Q,P)	TRANSISTOR		
Q38			2SK163(M,N)	FET		
Q38			2SK364(BL,V)	FET		

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Q39			2SD1266(Q,P)	TRANSISTOR		
Q40			2SC2003(L,K)	TRANSISTOR		
Q41			2SD863(E,F)	TRANSISTOR		
Q42			2SA954(L,K)	TRANSISTOR		
Q43			2SB941(Q,P)	TRANSISTOR		
Q44			2SK163(M,N)	FET		
Q44			2SK364(BL,V)	FET		
Q45			2SA954(L,K)	TRANSISTOR		
Q46			2SB772*1(Q,P)	TRANSISTOR		
DOLBY NOISE REDUCTION UNIT (X30-1270-01) (X30-1270-02)						
C1 -4			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		1
C1 ,2			CE04KW1V100M	ELECTRO 10UF 35WV		2
C3 ,4			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		2
C5 ,6			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		1
C7 ,8			CE04KW1V100M	ELECTRO 10UF 35WV		2
C9 -12			CF92FV1H222J	MF 2200PF J		
C13 ,14			CF92FV1H392J	MF 3900PF J		
C15 ,16			CF92FV1H474J	MF 0.47UF J		
C17 ,18			CF92FV1H154J	MF 0.15UF J		
C19 ,20			CF92FV1H153J	MF 0.015UF J		
C21 ,22			C90-1349-05	NP-ELEC 1UF 50WV		
C23 ,24			CF92FV1H224J	MF 0.22UF J		
C25 ,26			CF92FV1H683J	MF 0.068UF J		
C27 ,28			CF92FV1H563J	MF 0.056UF J		
C29 ,30			C90-1349-05	NP-ELEC 1UF 50WV		
C31 ,32			CF92FV1H562J	MF 5600PF J		
C33 ,34			CF92FV1H103J	MF 0.010UF J		1
C35 ,36			CF92FV1H152J	MF 1500PF J		1
C37 ,38			CF92FV1H122J	MF 1200PF J		1
C39 ,40			CE04KW1A470M	ELECTRO 47UF 10WV		
L1 ,2			L79-0189-05	LC FILTER		1
R5 ,6		*	RN14BK2C1781FTS	RN 1.78K F 1/6W		
R7 ,8		*	RN14BK2C2152FTS	RN 21.5K F 1/6W		
R9 ,10			RN14BK2C1001FTS	RN 1.00K F 1/6W		
R11 ,12		*	RN14BK2C1622FTS	RN 16.2K F 1/6W		
R23 ,24			RN14BK2C7501FTS	RN 7.50K F 1/6W		
R25 ,26			RN14BK2C6810FTS	RN 681.0 F 1/6W		
R27 ,28		*	RN14BK2C9091FTS	RN 9.09K F 1/6W		
R49		*	RN14BK2C1303FTS	RN 130K F 1/6W		
IC1		*	CX20188	IC(DOLBY B/C)		
Q1 -4			2SC1740S(Q,R)	TRANSISTOR		1
Q1 -4			2SC945(A)(Q,P)	TRANSISTOR		1
METER AMPLIFIER UNIT (X87-1020-00)						
C1 ,2			CE04KW1V100M	ELECTRO 10UF 35WV		
C3 ,4			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C5 ,6			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C7 ,8			CE04KW1C330M	ELECTRO 33UF 16WV		
VR1			R12-3057-05	TRIMMING POT.(10K) FL METER,L		
D1 -6			1SS176	DIODE		
IC1		*	BA6138	IC(ROOT AMP X2)		
IC2			AN6556	IC(OP AMP X2)		
IC2		*	M5218P	IC(OP AMP X2)		
IC2			NJM4558D	IC(OP AMP X2)		

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Q1			DTC114YFF	DIGITAL TRANSISTOR		
			RECORD/PLAYBACK UNIT (X87-1030-05)			
C1 ,2		⁎	CF92FV1H394J	MF 0.39UF J		
C3 ,4			CE04KW1V100MEL	ELECTRO 10UF 35WV		
C5 ,6			CC45FSL1H100D	CERAMIC 10PF D		
C7 ,8			CF92FV1H182J	MF 1800PF J		
C9 ,10			CF92FV1H823J	MF 0.082UF J		
C11 ,12			CE04KW1V100MEL	ELECTRO 10UF 35WV		
C13 ,14			CF92FV1H123J	MF 0.012UF J		
C15 ,16			CF92FV1H562J	MF 5600PF J		
C17 ,18			C009FS1H101JZS	POLYSTY 100PF J		
C19 ,20			CF92FV1H153J	MF 0.015UF J		
C21 ,22			CF92FV1H562J	MF 5600PF J		
C23 ,24			CF92FV1H392J	MF 3900PF J		
C25 ,26			CF92FV1H182J	MF 1800PF J		
C27 ,28			C009FS1H221JZS	POLYSTY 220PF J		
C29 -32			CK45FF1H103Z	CERAMIC 0.010UF Z		
C33 ,34			CE04KW1V100MEL	ELECTRO 10UF 35WV		
C35 ,36			C009FS1H101JZS	POLYSTY 100PF J		
C37 ,38		⁎	CE04KW1A221MEL	ELECTRO 220UF 10WV		
C39 ,40			CC45FSL1H330J	CERAMIC 33PF J		
C41 ,42			CF92FV1H153J	MF 0.015UF J		
C43 ,44			CE04KW1H3R3MEL	ELECTRO 3.3UF 50WV		
C45 ,46			CF92FV1H223J	MF 0.022UF J		
C47 ,48			CF92FV1H152J	MF 1500PF J		
L1 ,2		⁎	L40-1238-29	SMALL FIXED INDUCTOR(12MH,G)		
R5 ,6		⁎	RN14BK2C6192FTS	RN 61.9K F 1/6W		
R7 ,8		⁎	RN14BK2C1102FTS	RN 11.0K F 1/6W		
R11 ,12		⁎	RN14BK2C2612FTS	RN 26.1K F 1/6W		
R25 ,26			RN14BK2C5620FTS	RN 562.0 F 1/6W		
R29 ,30		⁎	RN14BK2C5112FTS	RN 51.1K F 1/6W		
R31 ,32		⁎	RN14BK2C1621FTS	RN 1.62K F 1/6W		
R41 ,42		⁎	RN14BK2C1470FTS	RN 147.0 F 1/6W		
R43 ,44		⁎	RN14BK2C1963FTS	RN 196K F 1/6W		
R45 ,46			RN14BK2C9091FTS	RN 9.09K F 1/6W		
VR1 -4			R12-3058-05	TRIMMING POT.(20K)REC/PB LEVEL		
D1 ,2			1SS176	DIODE		
IC1		⁎	TX3010N	IC(REC AMP)		
IC2		⁎	M5220P	IC(OP AMP X2)		
Q1 -4			2SC1685(R,S)	TRANSISTOR		
Q1 -4			2SC1740S(Q,R)	TRANSISTOR		
Q1 -4			2SC945(A)(Q,P)	TRANSISTOR		
Q5 ,6			2SC1685(R,S)	TRANSISTOR		
Q5 ,6			2SC1740S(Q,R)	TRANSISTOR		
Q5 ,6			2SC945(A)(Q,P)	TRANSISTOR		
			BIAS OSC UNIT (X87-1190-03)			
C1 ,2			CK45FB1H561K	CERAMIC 560PF K		
C3 ,4			CC45FSL1H151J	CERAMIC 150PF J		
C5 ,6			C91-0860-05	POLYSTY 470PF K		
C7 ,8			C91-0700-05	CERAMIC 0.1UF J		
C9 ,10			CK45FF1H223Z	CERAMIC 0.022UF Z		
C11 ,12			CK45FF1H103Z	CERAMIC 0.010UF Z		
C13			CE04KW1V100M	ELECTRO 10UF 35WV		

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C14			CC45FSL2H100D	CERAMIC 10PF D		
C15			CQ93HP2A103J	MYLAR 0.010UF J		
C16			CE04KW1E101M	ELECTRO 100UF 25WV		
C17			CF92FV1H102J	MF 1000PF J		
C18			CF92FV1H182J	MF 1800PF J		
C19 ,20			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C21			CE04KW1V100M	ELECTRO 10UF 35WV		
C22			CK45FF1H103Z	CERAMIC 0.010UF Z		
L1 ,2		*	L32-0369-05	BIAS OSCILATING COIL		
L3		*	L32-0378-05	OSCILATING COIL		
R7			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
R8			R92-0508-05	FUSE RESIST 22 G 1/4W		
D1			1SS133	DIODE		
D1			1SS176	DIODE		
IC1		*	UPC1297CA	IC(DOL HX PRO SYSTEM)		
Q1 ,2			2SD863(E,F)	TRANSISTOR		
CASSETTE MECHANISM ASS'Y (D40-0811-05)						
5	1C		D03-0251-08	REEL DISK ASSY		
6	1B		D10-0309-08	LEVER (REC)		
7	1B		D10-1614-08	LEVER		
8	2A		D10-1616-08	PINCH ROLLER ASSY (R)		
9	1A	*	D10-1617-08	LEVER		
10	1B	*	D10-1618-08	LEVER		
11	1A	*	D10-1619-08	LEVER		
12	2C	*	D10-1620-08	LEVER		
13	1A	*	D10-1621-08	PINCH ROLLER ASSY (L)		
14	1B	*	D10-1622-08	SLIDER ASSY		
15	2C	*	D10-1623-08	SLIDER ASSY (BRAKE)		
16	1B		D13-0080-08	GEAR ASSY (CAM)		
17	1B	*	D15-0241-08	PULLEY ASSY		
18		*	D16-0128-08	BELT		
19	1A		D90-0012-04	STEEL BALL (Ø3)		
20	1B		D90-0020-04	STEEL BALL (Ø2)		
24	1B	*	F99-0026-08	TUBE		
28	1A		G01-0484-08	TORSION COIL SPRING		
29	2B		G01-1601-08	COMPRESSION COIL SPRING (T)		
30	1C		G01-1602-08	COMPRESSION COIL SPRING		
31	2A	*	G01-1816-08	COMPRESSION COIL SPRING		
32	2B	*	G01-1817-08	COMPRESSION COIL SPRING (S)		
33	2B	*	G01-1818-08	TENSION COIL SPRING		
34	1B		G01-1819-08	TORSION COIL SPRING		
35	2A	*	G01-1820-08	TORSION COIL SPRING		
36	1A	*	G01-1821-08	TORSION COIL SPRING		
37	1B	*	G01-1822-08	TORSION COIL SPRING		
38	1B		G02-0387-08	FLAT SPRING (CASSETTE)		
39	1A	*	G02-0388-08	FLAT SPRING		
40	1C	*	G02-0389-08	FLAT SPRING		
44	1B		H12-0106-08	CARTON BOARD (LEAF SW)		
48	2C	*	J21-3786-08	MOUNTING HARDWARE (SW)		
49	2B	*	J21-3787-08	MOUNTING HARDWARE (MOTOR)		
50	1B	*	J21-3788-08	MOUNTING HARDWARE (B)		

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51	1A	*	J21-3789-08	MOUNTING HARDWARE		
52	2A	*	J21-3790-08	MOUNTING HARDWARE		
53	2C		J31-0268-08	COLLAR		
54	1A		J31-0269-08	COLLAR		
55	1B	*	J31-0270-08	COLLAR		
56	2C	*	J31-0271-08	COLLAR		
57	2B	*	J42-0139-08	POWER CORD BUSHING		
--			J61-0307-05	WIRE BAND		
			N24-3020-45	E TYPE RETAINING RING		
			N24-3025-45	E TYPE RETAINING RING		
			N24-3030-45	E TYPE RETAINING RING		
61	2A		N14-0142-08	NUT		
62	1C		N19-0336-08	FLAT WASHER		
63	1B	*	N19-0994-08	FLAT WASHER		
64	1B,2B	*	N19-0995-08	FLAT WASHER		
65	2C	*	N19-0996-08	FLAT WASHER		
D	1B		N09-1241-08	SCREW (M2X3)		
E	1C	*	N09-1593-08	SCREW (M2X5)		
F	1C	*	N09-1594-08	SCREW (M2X4)		
G	2A	*	N09-1596-08	SCREW		
H	1B		N09-1228-08	SCREW (M2.5X6)		
J	2C		N09-1240-08	SCREW (M2.5X4)		
K	1C		N09-1230-08	SCREW (M2.5X20)		
L	1B		N09-1456-08	SCREW (M2X3.2)		
N	2B		N09-1232-08	SCREW (M2.6X3)		
P	1A,1B		N09-1229-08	SCREW (M2.5X10)		
Q	2A		N09-1233-08	SCREW (M2X4)		
69	1C		S46-1017-08	LEAF SWITCH		
70	1C		S46-1019-08	LEAF SWITCH		
71	2C		S46-1051-08	LEAF SWITCH		
75	2A	*	T32-0309-05	ERASE HEAD		
76	2A	*	T34-0314-05	REC/PLAY HEAD		
77	1B	*	T42-0017-08	DC MOTOR ASSY		
78	2A	*	T42-0088-08	DC MOTOR ASSY		
79	2B	*	T43-0048-08	DD MOTOR ASSY		

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SPECIFICATIONS

Type	Front Loading 3 Heads Stereo Cassette Deck with Dolby B·C NR System
Track System	4-Track, 2-Channel Stereo/Mono, Recording/Playback
Recording System	AC Bias System (Bias Frequency: 105 kHz)
Erasing System	AC System
Tape Speed	4.76 cm/sec (1-7/8 ips)
Heads	Record and Playback combination Head × 1 (Amorphous Alloy) Erase Head × 1 (Double Gap Ferrite with SENDUST GUARD)
Motors	Capstan Drive: FG Servo Direct Drive Motor Reel Drive: DC Motor Mechanism Drive: DC Motor
Fast Winding Time	Approx. 80 seconds with C-60 tape
Frequency Response:	
Normal Tape	20 Hz to 18,000 Hz, ±3 dB
CrO_2 Tape	20 Hz to 19,000 Hz, ±3 dB
Metal Tape	20 Hz to 22,000 Hz, ±3 dB
Signal to Noise Ratio:	
Dolby C Type NR ON	75 dB (Metal Tape)
Dolby B Type NR ON	68 dB (Metal Tape)
Dolby NR OFF	60 dB (Metal Tape)
Harmonic Distortion	Less than 0.6% (at 1 kHz, 0 VU with Metal Tape)
Wow and Flutter	0.025% (W.R.M.S.) ±0.055% (DIN)
Input Sensitivity/Impedance:	
LINE × 2	77.5 mV/50 kohms
Microphones × 2	0.3 mV/600 ohms
Output Level/Load Impedance:	
LINE × 2	0.49 V (0 VU)/2 kohms
Headphones × 1	0.85 mW/8 ohms
Power Consumption	35 watts
Dimensions	W: 440 mm (17-5/16") H: 111 mm (4-3/8") D: 322 mm (12-11/16")
Weight	6.3 kg (13.9 lb)
Supplied Accessories	Audio Connection Cables × 2
Reference Tapes	Normal: KENWOOD ND-60 CrO_2: KENWOOD CD-60 Metal: KENWOOD MD-60

Note:

We follow a policy of continuous advancements in development. For this reason specifications may be changed without notice.

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Note :

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

KENWOOD CORPORATION
Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

KENWOOD U.S.A. CORPORATION
2201 East Dominguez Street, Long Beach, CA 90810;
550 Clark Drive, Mount Olive, NJ 07828, U.S.A.

KENWOOD ELECTRONICS CANADA INC.
P.O. Box 1075 959 Gana Court, Mississauga, Ontario, Canada L4T 4C2

KENWOOD ELECTRONICS BENELUX N.V.
Mechelsesteenweg 418 B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS DEUTSCHLAND GMBH
Rembrücker-Str. 15, 6056 Heusenstamm, West Germany

TRIO-KENWOOD FRANCE S.A.
Hi-Fi·VIDEO·CAR Hi-Fi
13, Boulevard Ney, 75018 Paris, France

TRIO-KENWOOD U.K. LTD.
17 Bristol Road, The Metropolitan Centre, Greenford, Middx. UB6 8UP England

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.
4E Woodcock Place, Lane Cove, N.S.W. 2066, Australia

KENWOOD & LEE ELECTRONICS, LTD.
Wang Kee Building, 4th Floor, 34-37, Connaught Road, Central, Hong Kong